

LOAD RUNNER

THE GALAXY'S FIRST COMPUTER COMIC

AT THE MERCY OF A **TYRANNOSAURUS REX**, TRAPPED IN FANTASTIC, GAME-PLAYING **COMPUTER WORLD** WITH NO MEMORY OF HIS IDENTITY OR HIS PREVIOUS EXISTENCE, **LOAD RUNNER** FACES ALMOST CERTAIN DEATH. SUDDENLY, A MYSTERIOUS FIGURE APPEARS...

IF I
DON'T ACT
FAST, IT'LL BE
TOO LATE!

IT ALMOST *IS* TOO LATE, AS THE
TYRANNOSAURUS MOVES IN FOR
THE KILL!



**QUICKSILVER
COMPETITION**



**THE HOUSE OF
MOVING WAX**



**COMPUTERS
ARE MAGIC**

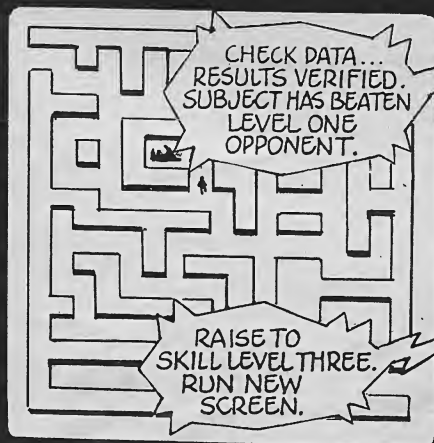


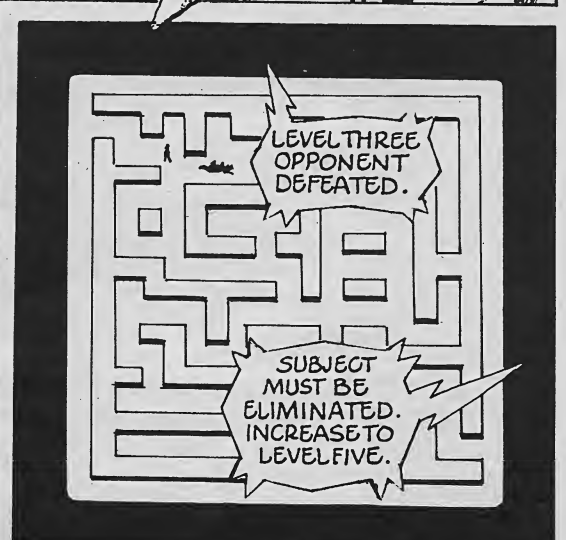
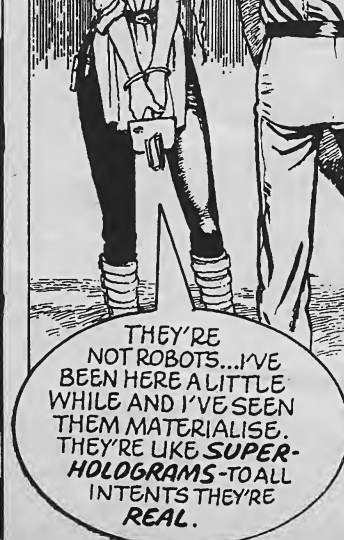
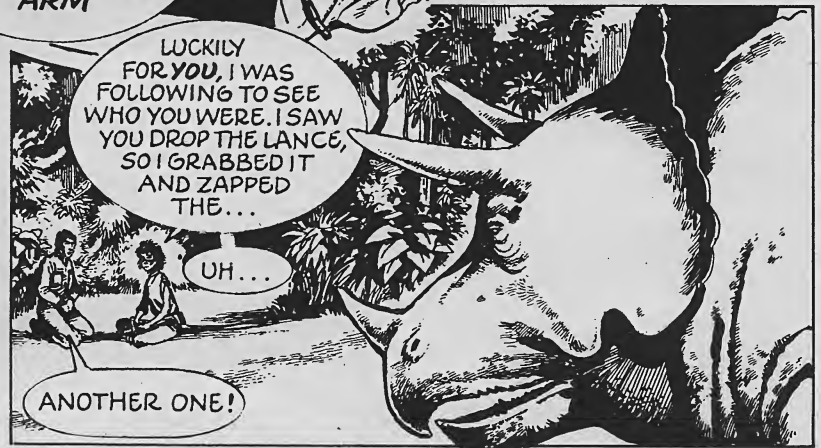


FORGETTING ITS PREY, THE TYRANNOSAURUS TURNS UPON THIS NEW SOURCE OF IRRITATION...



AND MEANWHILE THE GAME BECOMES MORE DANGEROUS







WELL, WHAT CAN YOU SEE?

I CAN SEE THE EXIT. WE'RE NOT FAR AWAY.



I THINK WE'D BETTER GET OUT OF HERE FAST, BEFORE ANYTHING ELSE CATCHES US OUT.

YEAH, I THINK YOU'RE RIGHT. THEN YOU CAN TELL ME WHAT YOU'RE DOING HERE.



HEY, LISTEN. THEY'RE GETTING CLOSE AGAIN.

OKAY, LET'S MOVE.



MOVE? HEY, YOU MOVE, SLOWCOACH!



PHEW!

THAT WAS CLOSE!



CLOSE IS RIGHT. THIS MUST BE THE EXIT.

OKAY, STAND WELL BACK. I'M GOING TO BURN A WAY THROUGH...

BUT AS PETRA RAISES THE LANCE...



HELL'S TEETH!

SCRIPT
STEVE CRADDOCK

ARTWORK
PETER DENNIS

LETTERS
MICK HOLLINGWORTH

NEXT PRINT OUT: BREAKOUT!

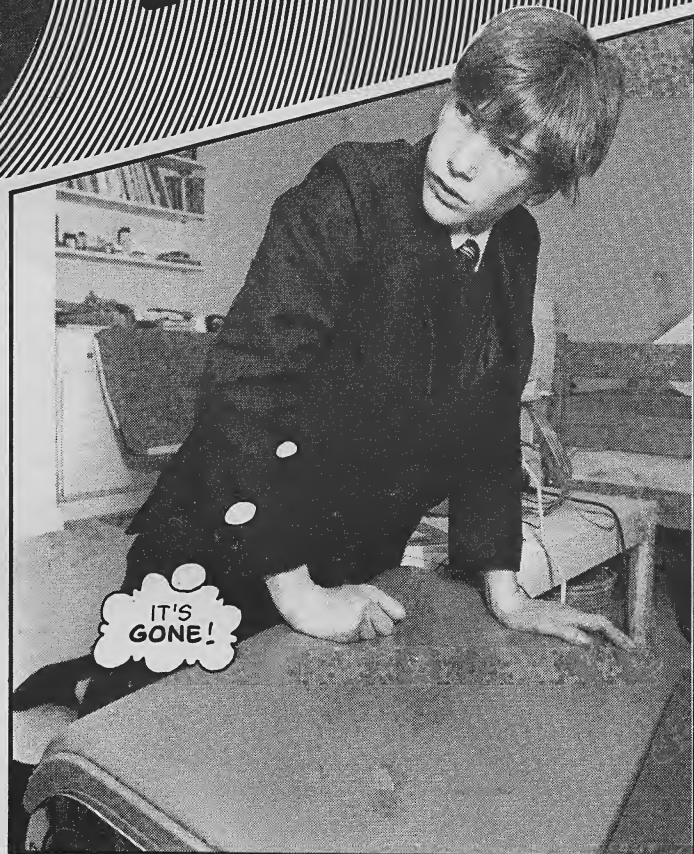
TIME PLAN 9

USING THE POWERS OF LEY LINES AND THE 4TH DIMENSION, PAUL'S AKRON 90 COMPUTER DELIVERED SOME UN-WANTED GUESTS INTO HIS BEDROOM, PAUL HAD TO SEND THEM BACK IN TIME... BEFORE HISTORY ITSELF WAS CHANGED...



PRESS THE RUN KEY AND HOPE.

WITH TIME PLAN 9 PROGRAMMED INTO THE COMPUTER, PAUL WAS READY TO EXPERIMENT...



IT'S GONE!



IT'S DEFINITELY GONE!

KAREN!

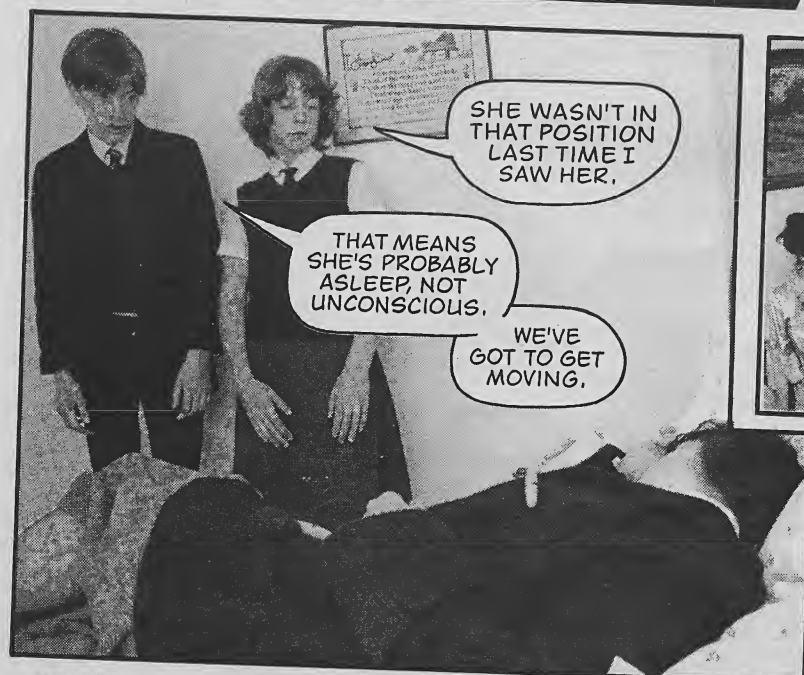


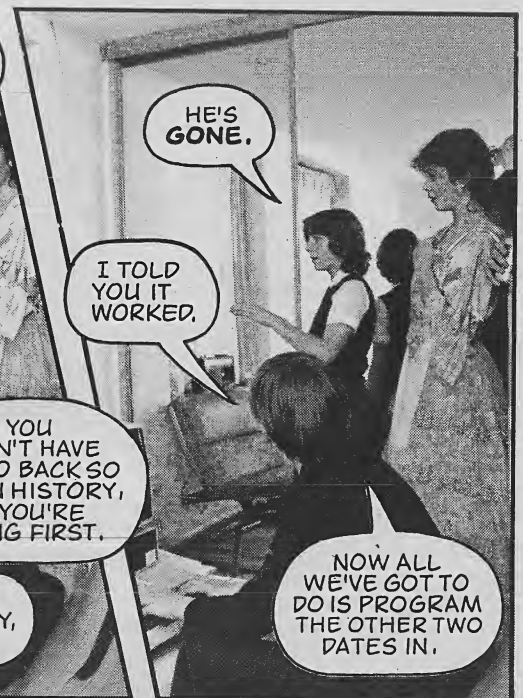
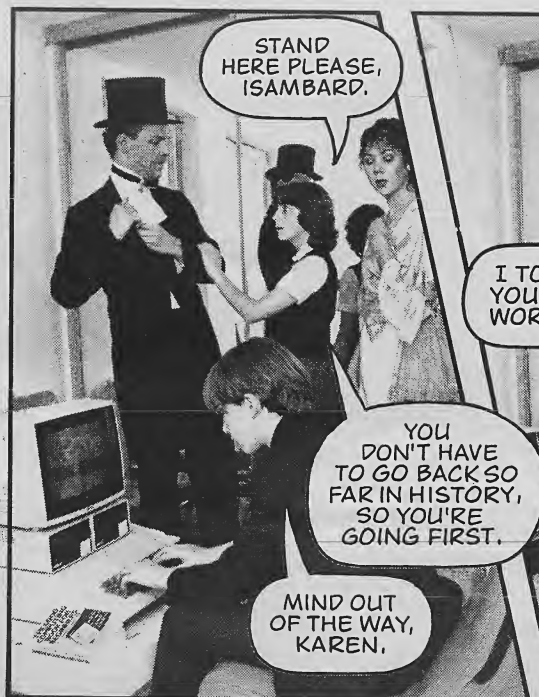
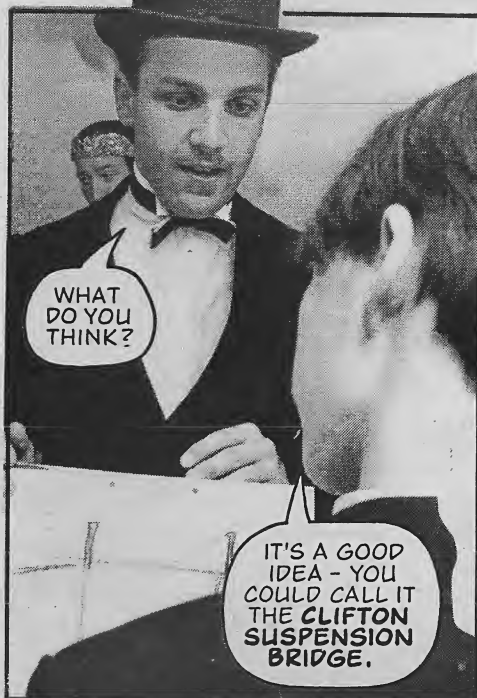
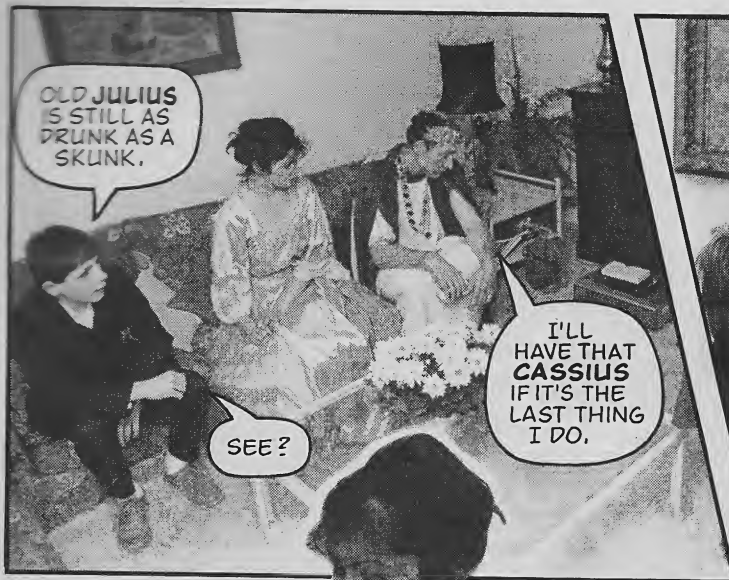
WHAT'S THE MATTER?

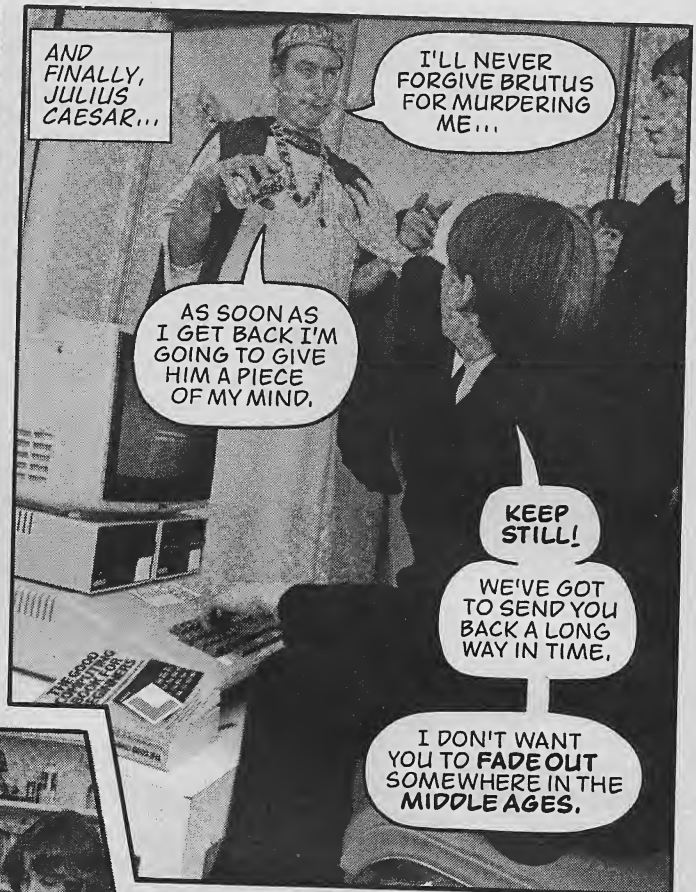
YOU HAVEN'T GOT ANYBODY ELSE, HAVE YOU?

NO, IT WORKS. TIME PLAN 9 WORKS!

SCRIPT- FRANK HOPKINSON
PHOTOS- HENRY ARDEN
LETTERS- S. CRADDOCK







M I C R O G A M E S

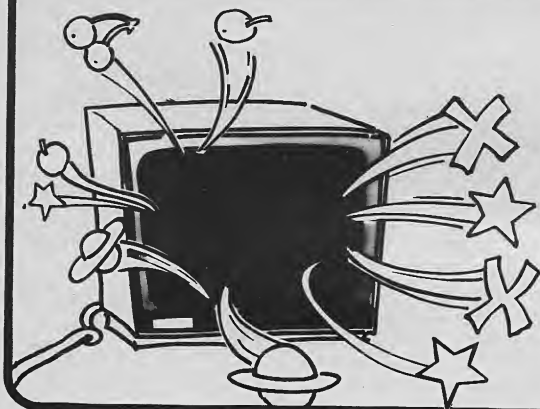
Patrick Bossert (Author of **You Can Do The Cube**) Philippa Dickinson

An electrifying selection of easily programmable, original games for BBC (models A and B), RML (380Z and 480Z) ZX Spectrum, and ZX 81.
£1.50 (illustrated)

Starting 1 September A micro competition with macro prizes

PUFFIN YOUNG PROGRAMMERS OF THE YEAR

in conjunction with Sinclair Research and the National Association of Youth Clubs



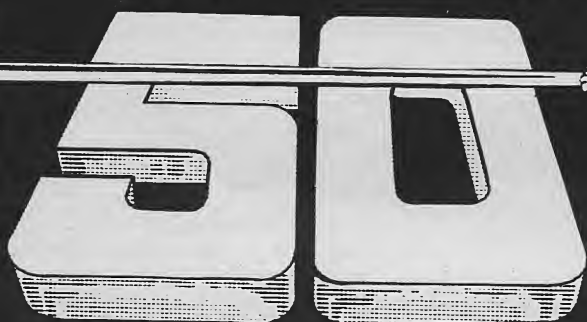
- * Three age ranges
- * 9 Sinclair ZX Spectrum or equivalent software to be won
- * 50 runner-up prizes of Penguin micro computer books in each section

Build up on your BASIC now...
the search is on!



Entry forms: Children's Marketing Dept.,
(Sincomp), Penguin Books Ltd, 536 King's Road, London SW10 0UH

OUT-OF-THIS-WORLD OFFER..



GAMES

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for your MICRO

• SPECTRUM • ORIC-1 •
• ZX81 • DRAGON • ATARI •
• VIC-20 • Apple ON DISC & CASSETTE

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LUNAR LANDER
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BARREL JUMP
CANNONBALL BATTLE
OVERTAKE
SITTING TARGET
SMASH THE WINDOWS
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I ENCLOSE CHEQUE P.O. FOR £9.95 (WHICH INCLUDES VAT AND DELIVERY).

PLEASE SEND ME 50 GAMES ON A CASSETTE FOR MY _____ COMPUTER.

NAME _____

ADDRESS _____

PARENT/GUARDIAN SIGNATURE _____

WE BUY GAMES CONTACT US NOW

LR 1.9.83

**FREE
GIFT**

In Printout No 9 Load Runner will be giving away an exciting **FREE GIFT** — an exclusive single recorded by the rock band **MAINFRAME** plus a program to accompany the music for the BBC, Spectrum and Dragon computers. To find out more about **MAINFRAME** watch the **Show-me Show on BBC 1, September 14th**. And place an order now with your newsagent for printout no 9, on sale October 13.

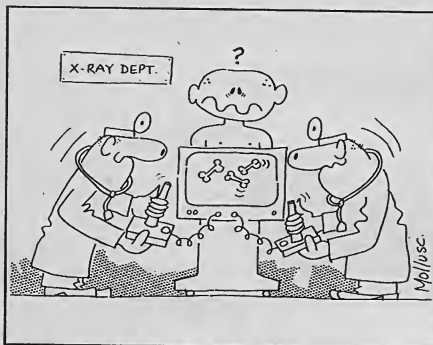
Cruel but fair

CONGRATULATIONS on a superb comic. It is very original and worth every penny. It's even better now with the computer programs. Keep up the good work.

Why are computer programmers cruel? Because they **POKE** and **PEEK** at the computer.

Marvin Dennis, 12, Leyton, E10

● I referred your joke to my programmers who were not amused. They then returned to their gruesome task of **PUNCHING IN** commands and watching their **EXECUTION**. Not a pretty sight.



Time Plan Zero?

I **THINK** your very original computer comic is excellent and good value for money. The artwork is very good and so are the plots of the picture strips.

In my opinion, however, Time Plan 9 is a lot of rubbish. I enjoy Countdown to Chaos and am glad you have started reviewing games in Soft Spot.

So, apart from the photo-story your comic is brilliant. Keep up the good work.

John Hobbs, 13, Exeter

LOAD RUNNER is very well done. I like all the stories, but the stories I like best are Load Runner, because of the excitement; Time Plan 9, because of the mystery and suspense; The Invasion of the Arcadians because of the artwork.

Douglas Cormie, Glasgow

● These are just a few lines from the extensive input which has arrived at my installation base. All your data has been filed by my operators for future reference. Time Plan No. 9 terminates in this printout and a thrilling new story program is loaded and ready to run in printout 7.



● Above are the winners of my **Bugsy Malone** Competition pictured in the Sord Show-rooms just before leaving for the theatre. From left to right they are Ian McIntosh, Angela Meyers, Daniel Ludlam, John Stevens and Darron Ferguson.

AQUARIUS COMPETITION

Below are the winners of the Aquarius Competition in Printout No 3:—

Christopher Filby, 14, Bedford
Nicholas Allgood, 13, Chaddesden, Derbyshire
Martin Tortell, 14, Bromley, Kent
Jamal Singh Rana, 15, Handsworth, Birmingham
James Sullivan, 11, Bexley, Kent
Tristan Walker, 13, London NW6

DECODERS

ATTENTION ALL DECODERS!

My operators have negotiated a special Load Runner discount for the Madame Tussaud's Royalty & Railways exhibition at Windsor & Eton Central Station, described in A.D. 1983 on page 37 of this printout. On presentation of a security pass together with the voucher below, the bearer will be entitled to a 50% reduction on the normal admission charges of £1 for children and £1.85 for those over 15. The voucher can be used for one admission only, but is valid until August 31st 1984. An amazing opportunity to view a unique display of computer-controlled animated figures.

The Load Runner Decoders grow in num-

ber every day, and my operators are gallantly struggling to deal with the ever increasing input. Those of you who haven't yet received your security passes and code books will be doing so shortly.

Listed below are the names of the lucky Decoders who will receive the free tickets for the Personal Computer World Show that I announced in Printout No. 4.

Tony Smithers, Woking Surrey
Lee Andrews, Gravesend, Kent
Marcos Soul, Oxford
Peter Kempshall, Newhaven, E. Sussex
Ioan Jones, Clwyd
Ben Russell-Gough, London N9
Gary Perrin, Dagenham, Essex

Adam Jackson, Maidstone, Kent
Tudor Costigan, Cheltenham, Glos
D. Geoghegan, Mitcham, Surrey
Incredible as it may seem to some, there are still some Load Runner readers who have yet to realise the overwhelming benefits of joining the Decoders.

For only £3 — or nothing at all, if you had the foresight to collect the tokens in the first 4 Printouts of Load Runner — you can gain access to the wealth of special offers and prizes that I will announce in each Printout. Just complete the coupon below and together with 2 passport-size photographs send it to me: Load Runner Decoders, 196-200 Balls Pond Road, London N1 4AQ.

**ROYALTY
& RAILWAYS
EXHIBITION**

50% DISCOUNT

TO DECODERS

on presentation of this voucher together with a Security Card, Load Runner Decoders will be allowed a 50% discount on normal admission charges

VALID UNTIL 31/8/84

List below the story/programs and fact routines that you like best in Load Runner.

- 1.....
- 2.....
- 3.....

What do you dislike most in Load Runner?

Do you have a computer? YES/NO

Name Age

Address

QUICKSILVA QUIZ

50 CASSETTES TO BE WON

THE GAME LORDS at Quicksilva have agreed to donate 50 fabulous cassettes as prizes for this printout's thrilling competition. The cassettes cover a variety of different machines and there is something for almost everyone. Top of the list are Quicksilva's recently released smash hits for the 48K Spectrum—AQUAPLANE, VELNOR'S LAIR, XADOM, 3D STRATEGY and SMUGGLER'S COVE. The prizes can be chosen from the selection below:-

Spectrum

AQUAPLANE: ski through the shark-infested waters (48K).
XADOM: search for the Artefact in a 3D maze world (48K).
VELNOR'S LAIR: penetrate Velnor's labyrinth to prevent his metamorphosis (48K).
3D STRATEGY: the virtually unbeatable superfast game (48K).
SMUGGLER'S COVE: find Black Beard's treasure, but beware of the pirates (48K).
ASTROBLASTER: survive the five attack waves of alien spacecraft (16K).
FRENZY: zap the lumbering monsters and avoid the exploding pods (16K).

Vic 20

SKYHAWK: pilot the jet fighter and defend the village (3K or 8K + joystick).
SUBSPACE STRIKE & ZOR: unleash havoc in the Federation Spacelanes (16K).
HARVESTER & BRAINSTORM: reap boosterspace in this cut-throat strategy game (unexpanded).
PIXEL POWER: create user-definable characters with this useful graphic workshop (8K or 16K).
STARQUEST & ENCOUNTER: seek a habitable planet amidst the perils of the cosmos (16K).

Atari 400/800

MAGIC WINDOW: excellent character generator with full joystick control (16K or more).

Dragon

MINED—OUT: save Bill the worm and rescue the cloned Damsels (48K).

BBC B

WIZARD: fight off the demons with your magical powers (32K).
PROTECTOR: protect the Units against the mine-laying UFOs and the lethal monsters (16K + joystick).
BEEB-ART: creates amazing hi-res pictures with joystick or cursor keys (32K).

16K ZX-81

PIONEER TRAIL: a western adventure based on historical data.
DAMPER & GLOOPER: adventures in power grids and mazes.
COSMIC GUERRILLA: battle with the rebel craft in outer space.
OCEAN TRADER: all the perils of the high seas.
3D BLACK STAR: navigate the narrow corridor, dodging the pursuing craft.
MUNCHEES: beware the ghostly creatures in the haunted house.
CROAKA CRAWLA: a frog's battle for survival.
GALAXIANS & GLOOPS: attack the invading aliens.

To enter simply answer the questions below, and complete the tie breaker. The competition will be judged by Quicksilva and the 50 winners will each receive the cassette of their choice.

Send your entries to: Quicksilva Quiz, Load Runner, ECC Publications, 196-200 Balls Pond Road, London N1 4AQ, to arrive not later than September 16. The judges' decision is final and employees of ECC Publications and Quicksilva are ineligible.

- Name Sinclair's first home computer.....
- Quicksilva was originally founded as:-
a) A business software house. b) A book publishing house.
c) A manufacturer of ZX80 add-ons. d) An arcade machine manufacturer.....
- Quicksilva's first program for the Spectrum was:-
a) Timegate. b) Space Intruders. c) Trader. d) Mined-Out.....
- The American version of the Spectrum will be called:-
a) Timex Spectrum. b) TZX 100. c) Timex-Sinclair 2000. d) Timex ZX83.....
- Name two computers other than the ZX81 and Spectrum for which Quicksilva also produces software.....
- What is the name of the show held 4 times per year which is dedicated entirely to Sinclair computers?.....
- The Spectrum's microprocessor is called:-
a) 6502. b) Z80. c) 6708. d) Z80A.....
- Quicksilva's slogan is:-
a) The Game Lords. b) Superlative Software.
c) Solid Silver. d) QS—The Best.....
- Name two magazines devoted entirely to Sinclair computers.....
- Quicksilva's Head Office is at:-
a) Plymouth. b) Southampton. c) London. d) Liverpool.....

As a tie breaker, complete the following in not more than 12 words.

Quicksilva Software is the best in the Universe because

The cassette I would choose is

Name

Address

Age.....

THIS PRINTOUT'S data snake spells the name of a well-known computer meanie. Follow the directions which are given below.

I D E A L A G A
E N V E D T T L
C A S L R I S F
S R P B R E A K
A T L O G O E I
M C S A P A T X
X A R O U T I S
A L P B E L N I

Find the correct letter 'S' and follow the directions to make a word:
S, NW, W, N, N, SE, E, NE, SE, W, SE

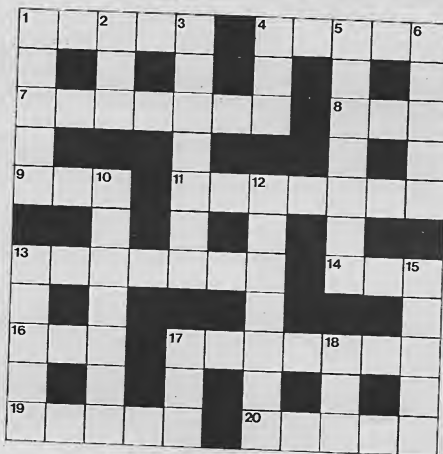
COMPLETE the following words or phrases. All except one is a computer term. Which is the odd man out.

BUS _____ CHIPS
BOOT _____
HAND _____

FIND the next combination of binary digits by following the sequence

11011010
01101011
10101110

Wordplotter 6



Across

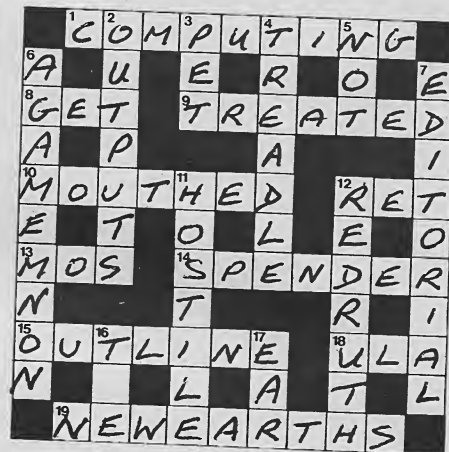
1. Little logarithm with a chip—the basis of computer operation (5)
4. Swish new micro carried by old runner (5)
7. How future computers will communicate with us (7)
8. Cry for help one way or the other (3)
9. Assignment statement in Apple, TI and Sinclair Basic (3)
11. Computer—exist! You're a little bug! (7)
13. $LET C = A + B$ (4,3)
14. Last statement in the broken disc (3)
16. What micro users do? (3)
17. Don't be afraid, except of a logical keyword? (4,3)
19. Clive Sinclair's is "Sir" (5)
20. Find hobbies in the middle to connect equipment safely (5)

Down

1. Get it right with the cassette recorder (5)

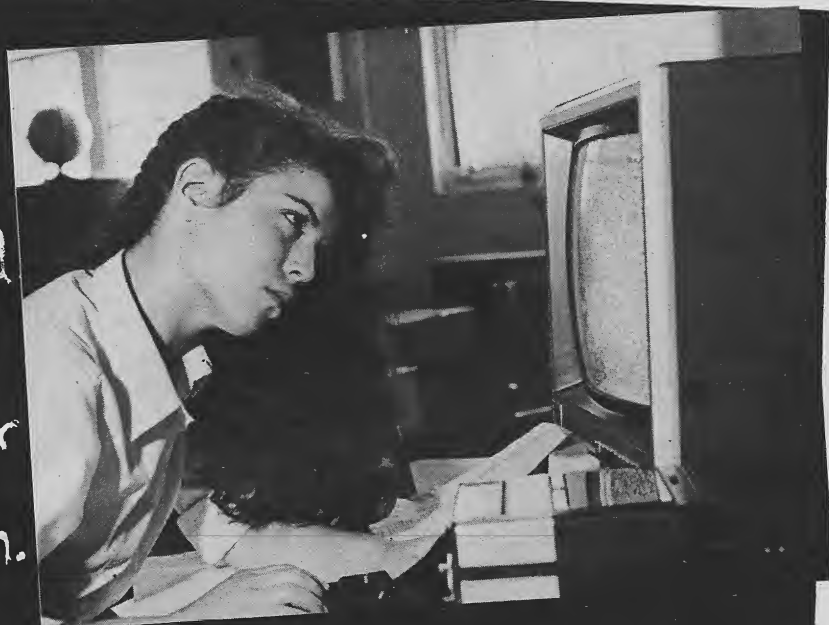
2. Generally an electric company (3)
3. Vertical rows on the screen (7)
4. People think the ZX-81 is one, but it isn't! (3)
5. Get the DATA back about the shop (7)
6. More of it will slow you down (5)
10. Brown man with a trig. ratio (7)
12. What micros do—and what to do with micros (7)
13. A big bug? (5)
15. Go it and split the cost in the Netherlands (5)
17. What the Controller gives you for publishing your letter (3)
18. Not OR from when you load, run or list (3)

WORDPLOTTER 5 SOLUTION



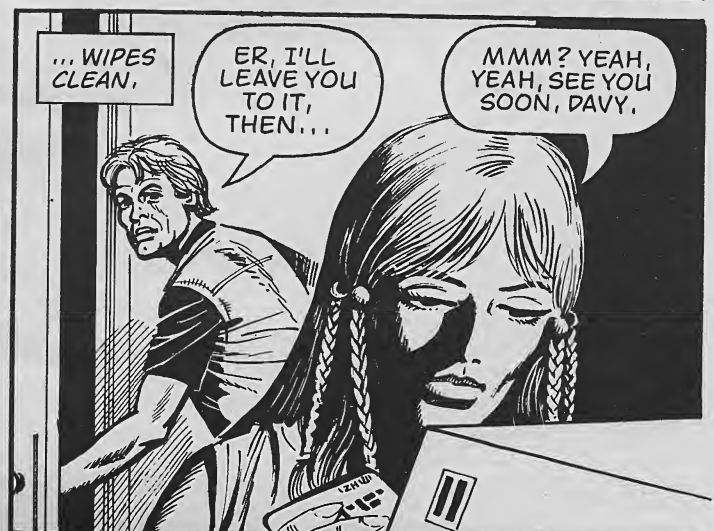
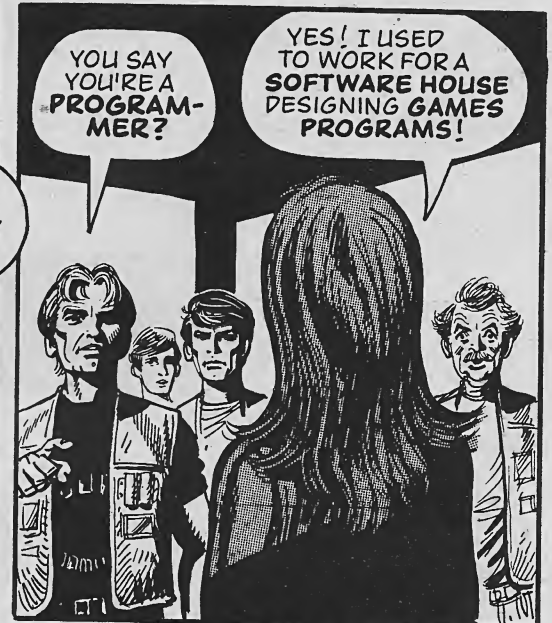
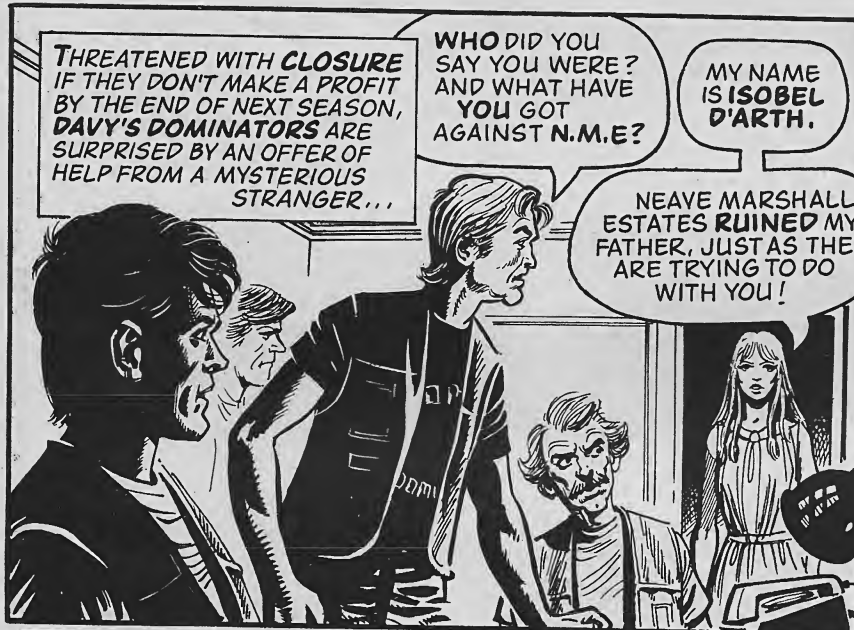
ANSWERS to the puzzles in last printout:
The bank computer would perform task 3 at 5 pm.
The Secret Path spelt out the words GRAPH PLOTTER.

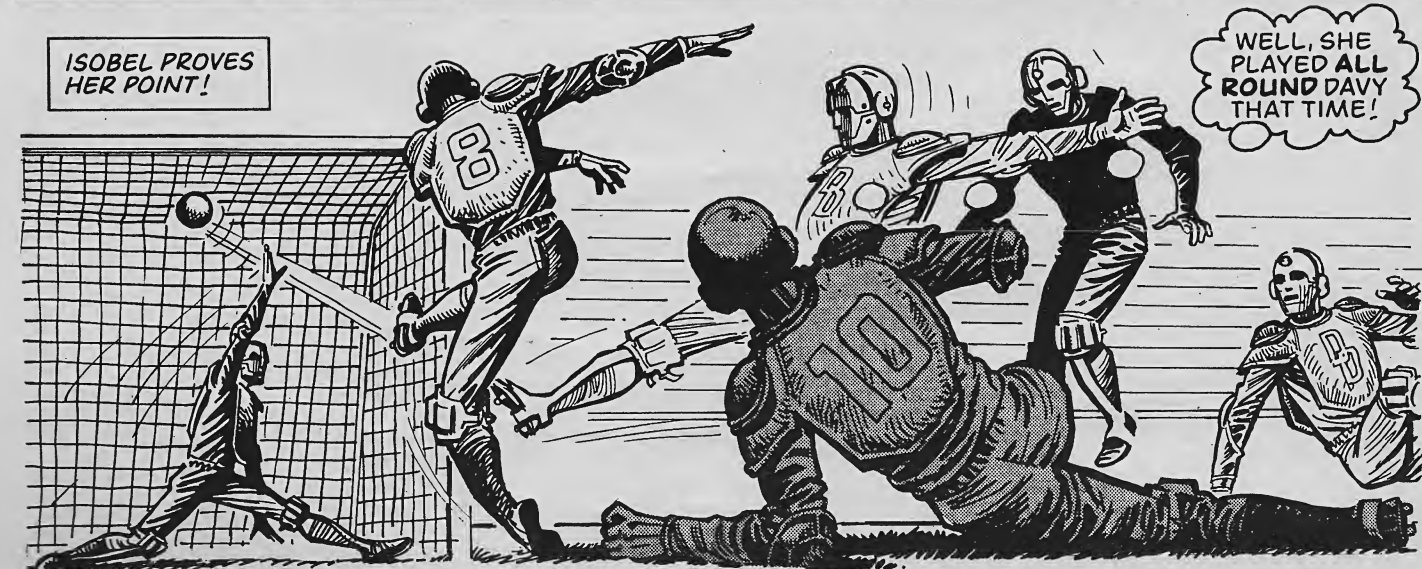
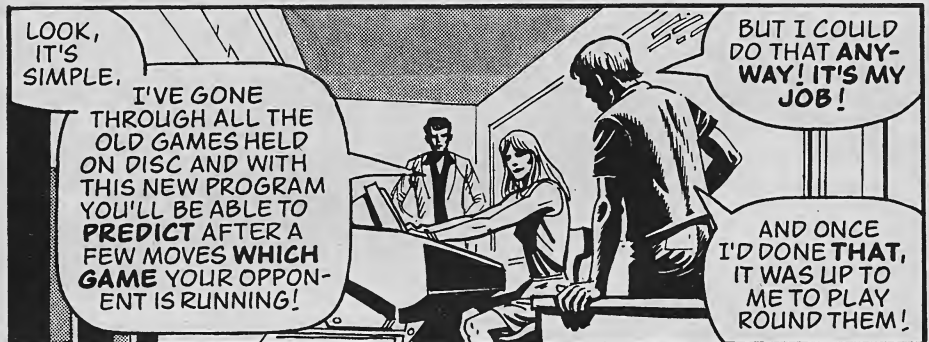
Meet Beverley Jeavons—Bever for short. She's a troublemaker and a rebel. Her teachers don't think much of her and she thinks even less of them. In fact, there's



only one thing she thinks about at all—and that's computers. She's computer-crazy and she's **RUNNING WILD!** Her story begins next printout—Sept 15.

Andy Royd-the DOMINATORS' Rogue star!







BUT ANDY CAN'T LET IT GO AT THAT!

NO PROGRAM WILL EVER KEEP ME OFF THE SCORE SHEET!

THAT'S ONE!

SCRIPT-
CHRIS WINCH
ART-
JOHN STOKES
LETTERS-
S. CRADDOCK



HOW THE...

IT FOXED ME TOO!

THAT FOXED YOU, DIDN'T IT?

AND THAT MAKES IT TWO!

COMBINING HIS NATURAL SKILL AND FOOTBALLING BRAIN, ANDY AGAIN BURSTS THROUGH ISOBEL'S DEFENCES!



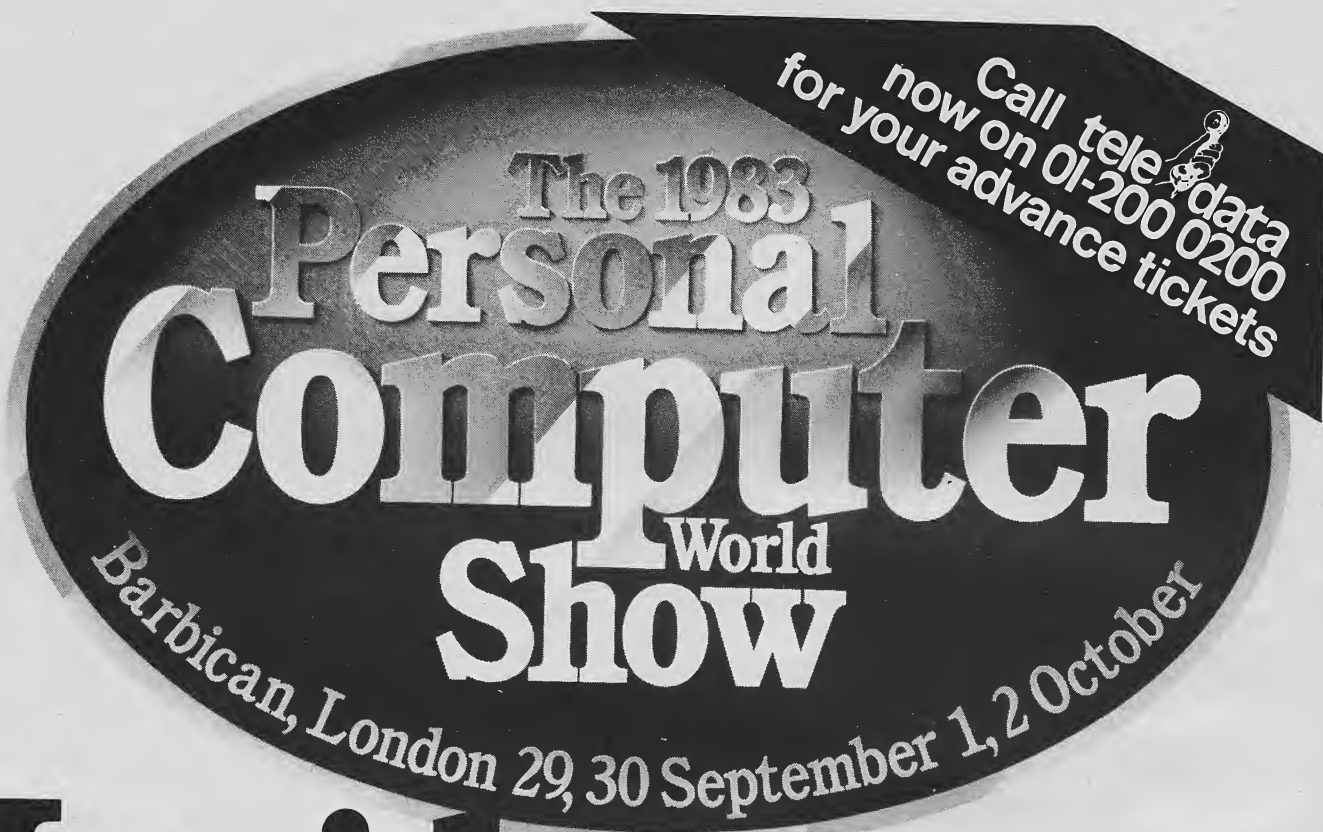
SORRY, MISS D'ARTH, BUT IT WASN'T QUITE GOOD ENOUGH, WAS IT?

OH, THERE'S NOTHING WRONG WITH THE PROGRAM DAVY... IN FACT THERE WAS ONLY ONE WAY YOU COULD HAVE BEATEN IT...



...AND I KNOW WHAT IT IS!

DOES ISOBEL REALLY KNOW THE DOMS' SECRET? ALL WILL BE REVEALED IN THE NEXT PRINTOUT OF -
ANDY ROYD, ROGUE STAR!



Inside: Information

The wonderful world of the PCW Show opens up again on 29th and 30th September and 1st and 2nd October.

And, like every previous Show, it's the one and only place for the newest, biggest, smallest, costliest, cheapest, finest, micro hardware, software, bolt-ons and books.

Where the big news breaks first.

At the Personal Computer World Show you'll see the launch of some astonishing new kit, fascinating software and vital peripherals.

And you can discover it all at first hand, scooping all the magazines.

Know the world of personal computers.

Just about every micro manufacturer, software vendor, and goodie supplier will be at the PCW Show.

There'll be special deals on offer, too, as well as the chance to enter the Computer Scrabble® competition, and watch the 4th European Computer Chess championship.

Plus the MicroComputing Centre, Computer Town, Computer Clubs, and more.

The time and the place for everything.

Make sure you visit the PCW Show. It's on from Thursday September 29th until Sunday October 2nd, at the Barbican Exhibition Centre in London.

It'll be fully signposted, and is easy to reach by tube, bus or car. Make sure you don't miss out.

The PCW Show: £3.00 - but to you £2.50.

Clip and keep this voucher to save 50p when you buy a PCW Show ticket on the day.

PCW SHOW 50p DISCOUNT VOUCHER

- This voucher entitles the bearer to 50p (fifty pence) discount on the full £3.00 entrance fee to the Personal Computer World Show.
- The organisers reserve the right to admission.
- Only one voucher per person/entrance. LR10

Or to really save, organise ten or more friends and order our £1.25 Group Tickets in advance - nearly 60% discount!

Just complete and send the coupon today.

PCW SHOW GROUP TICKET ORDER

I have managed to persuade, cajole or press gang _____ (10 or more!) of my friends to attend the PCW Show, so please send me the same number of tickets at the very special rate of £1.25 each inc.

- ☐ I enclose a cheque for _____ made payable to PCW Show
- ☐ Charge my Access/ Barclaycard No. _____

Signed _____

Name _____

Address _____

PCW Show Tickets,
11 Manchester Square,
London W1M 5AB.

Please note: This offer is only for 10 or more tickets per order. LR10

Creepy crawlies

TRACKING the Centipede is just one of the tasks in the 16K Oric version of this traditional arcade game.

The deadly creature will be the least of your worries as the game progresses. In the second phase spiders start to jump around the screen. They may not seem life-like but they are lethal.

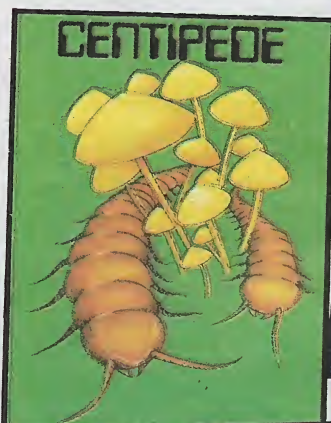
In the third and fourth phases of play the spiders are joined by bugs which plant extra mushrooms on the screen. If you manage to get through the fifth level a second centipede joins the first.

This version of Centipede bears a close resemblance to the original, though it is not so colourful. It is fast but the player's controls are difficult to use. You have to take your hands off the controls to start a new game and that may cause confusion if your reactions are slow.

The game would have been easier to play if the player had been given the choice of which keys to use. That would have a double advantage as both left and right players would be able to play the game with ease and the keyboard would not be destroyed by constant thumping on one particular key.

Centipede costs £6.95, and is available from PSS.

Fun, 7; addictive, 7; graphics, 6.



Monkey business

YOU ARE ASSURED of a swinging time in *Jungle Trouble*, for the 16K Spectrum.

First, though, you have to hop across a crocodile-infested river, knock down some trees with your axe while harassed by monkeys and climb a ladder to get to the fire pit. At that point you display your Tarzan-like biceps, grab a swinging vine and leap over the flames.

The game has four levels of play. The first task is the most difficult as you must cross the river using stepping stones, hitting the 'jump' key at the right time or you will fall into the river and probably be eaten by crocodiles. That part of the game is so difficult that the rest is almost an anti-climax.

Jungle Trouble costs £5.50, from Durrell Software.

Fun, 6; Addictive, 6; graphics, 8

Matrix, son of Gridrunner

THE DROIDS are back in *Matrix*, the all-action machine-coded sequel to *Gridrunner*, from Llamasoft. It runs on the Commodore 64 and, because of its speed, must be played with a joystick.

There are 20 zones to travel through, each with new combinations of aliens. Six of them can be selected at the beginning of the game by 'zone selection' using a 'letter' key. You have to get through the other 14 levels using your skill, so make sure you have a good joystick.

The instructions for the game are not perfect. The 'letter' keys prove to be 'function' keys at the side of the main keyboard. No mention of that fact is made. There is also a pause facility but it took some time to find the key to operate it.

The game takes place on a grid where droids attack in squads. Mystery bonuses can be earned if you do well against them.

Several attack waves consist of camels. You must hit as many as you can as your score decreases rapidly during those rounds. If you are not quick enough it could run down to zero.

Matrix at £7.50 is a fast and entertaining game. It is a pity that the instructions are so confusing.

Fun, 7; addictive, 7; graphics, 9



MATRIX

Confusing Cruising

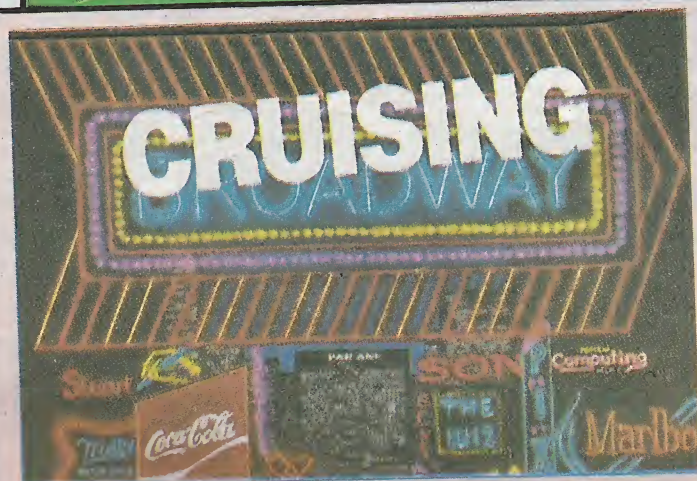
USUALLY software houses which produce maze chase games try to make them exciting, graphically impressive and original. Unfortunately *Cruising*, for the Dragon 32, is boring and there is nothing, except its speed, for which we can recommend it.

During the game the player is chased by a small object called a Chaser. To throw the creature off the scent you have to make a gap in the track on which you are travelling. If you complete one circuit you will have finished one level and a new maze pattern is put on to the screen. That continues through succeeding levels until either you are hit by the Chaser or bored with the game and turn off.

The higher you go the more complex the maze patterns become and the easier it is for the Chaser to catch you. If complex patterns and moving dots are what you want, however, it would be better to buy a pattern generator.

The cost of *Cruising* is £6.95 from Sunshine.

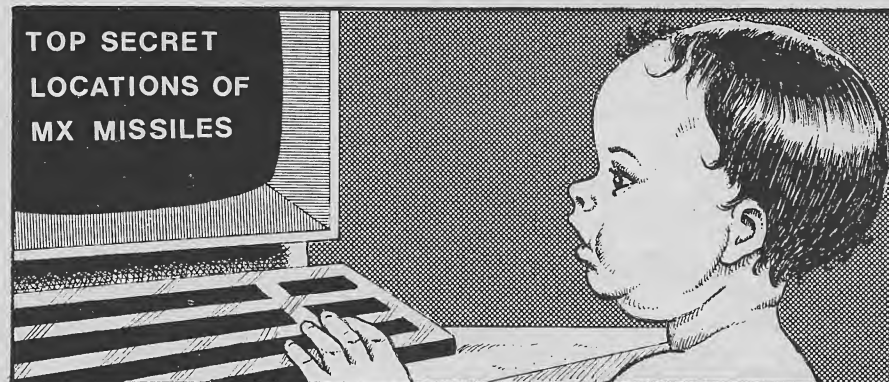
Fun, 6; addictive, 5; graphics, 4.



Easy access to state secrets

IT SEEMS that the feature film *War Games* is not so far-fetched after all. Only weeks after the film was released in the States, ten youngsters living in Milwaukee succeeded in accessing into the National Computer at Los Alamos, New Mexico. The youngsters, all aged between 15 and 22, discovered the correct access number and by

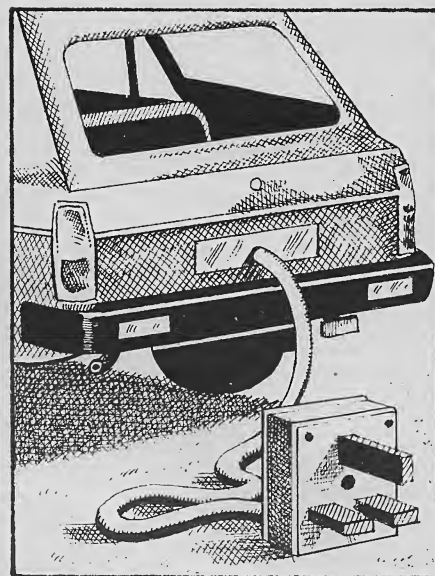
using a modem relayed information from the nuclear weapons laboratory to their personal computer. A spokesman for Los Alamos has said that the access number has now been altered, and that the information accessed was, in any case, unclassified — but then he would say that, wouldn't he?



Talking computers

TWO NEW PROJECTS have recently been announced for computers to help the disabled. The Versatile Portable Speech Prothesis is an experimental wheelchair for those who can neither walk nor talk intelligibly. It will hopefully enable the speech to be clarified and produced through a 'voice box' controlled by a computer and

powered from the wheelchair batteries. A computer system is being produced for the Open University which will 'speak' to the user, communicating information which would otherwise appear on a screen, so that the contents of Prestel, for example, can be readily accessed.



Current affairs

CLIVE SINCLAIR'S latest project uses computer technology to challenge all of the basic concepts that have, until now, prevented electric transport from becoming a reality.

Sinclair has come up with a radically new, though very simple, method of prolonging battery life.

The main problem stems from the fact that batteries cannot withstand rapid and continuous discharge or recharging. Sinclair has solved that by using a microcomputer to switch the current on and off at intervals of 3 microseconds. This has the effect of prolonging battery life while presenting a seemingly uninterrupted power supply to the user.

The Computer Story

A HISTORY OF COMPUTERS
PART SIX

BABBAGE HAD INTENDED USING PUNCHED CARDS FOR INPUTTING INFORMATION TO HIS UNSUCCESSFUL "ANALYTICAL ENGINE". BUT THEY WERE THE SUCCESSFUL BASIS OF ELECTRICALLY-POWERED INFORMATION PROCESSING SYSTEMS DEVELOPED TOWARDS THE END OF THE 19TH CENTURY—WHEN THE FOCUS OF INDUSTRIAL GROWTH AND COMMERCIAL SUCCESS WAS SHIFTING FROM EUROPE TO THE UNITED STATES.

ELECTRICAL DATA PROCESSING

THE MASSIVE AND CONTINUING GROWTH OF THE U.S. POPULATION MEANT THE CENSUS OFFICE HAD TO FIND A WAY OF PROCESSING INFORMATION FASTER—BEFORE IT BECAME OUT OF DATE.



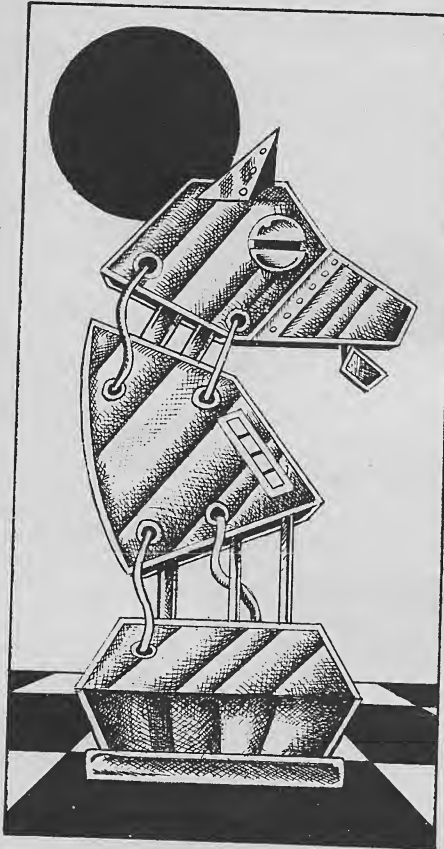
Far left: Card punch
Left: Hollerith punched card

A COMPETITION WAS WON BY HERMAN HOLLERITH'S ELECTRICAL TABULATING MACHINE. IT WAS AT LEAST TWICE AS FAST AS THE RIVAL MECHANICAL SYSTEMS, AND PROCESSED THE 1890 CENSUS IN TWO YEARS COMPARED WITH SEVEN YEARS FOR THE 1880 CENSUS—WHICH HAD BEEN DONE BY HAND.

Written and drawn by Chris Smithers

Micros in check

COMPUTER CHESS championships are now held regularly, in which computers play each other as well as playing people. Last year the champion was a computer called Belle, which was capable of considering 160,000 different moves and positions every second. It had a rating of 2,400 points, and contained nearly 2,000 chips.



● Buzzwords are the jargon of the computer world and can be very confusing. Below, *Load Runner* continues its glossary of computing terms. Get buzzing.

● **Daisywheel.** A type of printer which produces high-quality output. It uses a removable print element in the shape of a disc with the characters attached to stalks which surround a central hub. This type of printer can be connected to almost any computer.

● **Data.** Information which is entered, stored, manipulated, and output using a computer. Everything which is entered into a computer is treated as data. If the memory contents of a computer were to be examined it would show that all data is represented as numbers. The computer can understand only numbers so it has to translate data which is entered in English-type sentences into numeric data.

● **Database.** A collection of bits of information which can be accessed quickly by a computer. Databases can contain all types of information from patients' medical records to criminal records.

● **Debug.** To identify and sort out the errors which exist in a computer program. The error, or bug, could be in the structure of the program or in the data which the program is using.

● **Decimal notation.** Numbers such as 40 or 3.2 which we usually use to perform calculations. These num-

bers are in base ten, which means that we can count from one to nine in the units column of a number before we put one in the tens column.

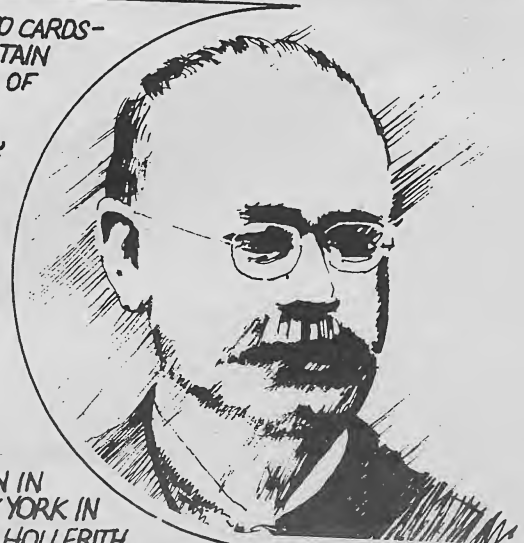
● **Digital.** A system which uses electronic pulses to represent data. The state of the signal represents a set of instructions to the computer which then carries out those instructions using its own digital electronic pulse code.

● **Disc.** Used for storing data and programs when a computer is switched off. For this reason it is called a backing storage medium. A disc is inserted into a disc drive. It is that device which records the information on to the magnetic surface of the disc.

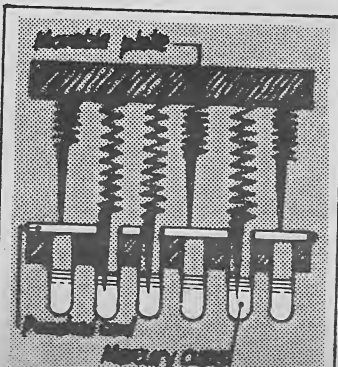
● **Diskette.** Sometimes called a floppy disc. It is smaller than a disc and more durable. It can, for instance, be sent through the post without damage being done to it.

● **Dot matrix.** Another type of printer. This squirts ink on to the paper in the printer. The ink is forced through a tiny grid which forms the letters on the page. The grid contains a block of holes, some of which are shut to drive the ink into a particular pattern. The printer usually has its own program to control the ink flow and distribution.

THE DETAILS OF EACH PERSON WERE PUNCHED INTO CARDS—EACH POSITION ON THE CARD SIGNIFYING A CERTAIN PIECE OF INFORMATION—E.G. AGE, SEX, COUNTRY OF BIRTH, ETC. TO READ THE CARDS THEY WERE PLACED IN A PRESS WITH ELECTRICAL CONTACTS, SO THAT A HOLE IN THE CARD CAUSED A CORRESPONDING COUNTER TO MOVE ONE PLACE. THE TABULATOR'S 40 DIALS ENABLED SEVERAL DIFFERENT PIECES OF INFORMATION TO BE COUNTED AT THE SAME TIME.



BORN IN NEW YORK IN 1860, HOLLERITH WAS A SHREWD BUSINESSMAN AS WELL AS A PRACTICAL INVENTOR. IN 1896 HE FORMED THE TABULATING MACHINE COMPANY TO MANUFACTURE AND SELL HIS EQUIPMENT WORLD-WIDE. WHEN HE DIED A MILLIONAIRE IN 1929, HE STILL COULDN'T SPELL!



Above: Tabulating press and counters
Right: Working principal of card press

MICRO MAGIC

THE SUPERNATURAL dimension of magic and the down-to-earth, logical world of computers seem at first to be incompatible, but world famous conjuror and TV star Paul Daniels has found no difficulty in coming to terms with the new technology.

A magician since the age of eleven, when he first delved into a book of tricks, he now owns an Atari 800 computer and is well on the way to becoming an addict. He admits to being fascinated by hardware, and his study, overflowing with books and magazines, is packed with electronic wizardry, including a projector, television and hi-fi system as well as his computer set-up. "I've always been a practical person," Paul confesses. "I like anything mechanical or electronic."

What made Paul buy a computer? "I'm an entertainer in a high-tech world and I had people (who are computer programmers) coming onto my shows and talking to me in beeps!" He decided that computing was something he had to learn more about.

Paul particularly enjoys playing adventure games, and hopes one day to write his own. In general, however, he views the computer as a highly efficient tool rather than as entertainment: "I have a fan club which I want to communicate with by writing a lot of letters to a lot of people. I also want to list this library. I've got 8000 books and 15,000 magazines all on magic! And an alphabetical list of tricks would be marvellous."

When it comes to using computers in his profession, Paul has a few cards up his sleeve: "If I can get a good graphics device working then I'll be able to draw the illusions on the screen and look at them in different colours and different shapes, quickly and easily, so that I can say to my designers, 'Look, that's what I want, this colour, that shape!'"

Tricky stuff, but then if anybody could conjure up images on a screen, Paul Daniels could.





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Shut down all systems! It's . . .

COUNT DOWN TO CHAOS

by Philip Steele

Humanity has gambled on its future. In offices and banks all over the world, in railway stations, in airports, in the home and in space as well, people depend on the microchip. The gamble pays handsome dividends, until the resources of planet Earth are attacked by some mysterious bacteria. Top of the menu for the bacteria are silicon chips. The world panics but Joe and Ellie do not—at least not very much. They survive all kinds of disasters and finally make their way to the observatory of the strange Professor Lebo, where they stumble across an extraordinary clue. . .

JOE SWITCHED ON the professor's desk lamp so that they could look closer at the photograph. At first, Ellie noticed nothing special. The picture was of a comet, presumably the one which was passing so close to the Earth at that moment.

"Give us the magnifying glass, Joe".

"Look, here, just in front of the comet!" Joe pointed.

"Cor!"

Just then the door swung open and Professor Lebo entered the study.

"Please, *please!* Take your grubby fingers off those photographs. They are not holiday snapshots but important scientific data. Now, come with me".

"But professor, look at this", pleaded Ellie in desperation.

"Aha, the comet. Well, now. Comets are bodies made of dust and gas, whose orbit passes through the solar system. The sun activates the comet's gases until they glow. Now the tail, here,"—the professor pointed beyond



one of Joe's thumbprints—"is simply that part of the main body which is forced to stream backwards as the comet continues on its orbital path".

"Yes, professor, we know all that", interrupted Joe. "But look closer at the *head* of the comet".

The old boy grunted impatiently. "Oh, very well". He peered through the lens—and fell silent. After what seemed like an eternity he stood up and scratched his mane of white hair. He went to a filing cabinet and took a negative from a numbered envelope. He slid it into a special microscope carrier and with his thick glasses pushed up on his dome, bent over the eyepiece. He clicked up the magnification several times and drummed his fingers on the desk.

"Right, stay here. Don't touch a thing!" The door banged behind the professor and his footsteps echoed along the corridor. He was running.

"It *is* a spaceship, isn't it, Ellie?" asked Joe.

"Looks like one to me".

"And it's not like any of our spacecraft, right?"

"Not unless it's a secret one, or something".

There was a hubbub in the corridor outside and the professor hurried back, followed by a stream of people in white coats.

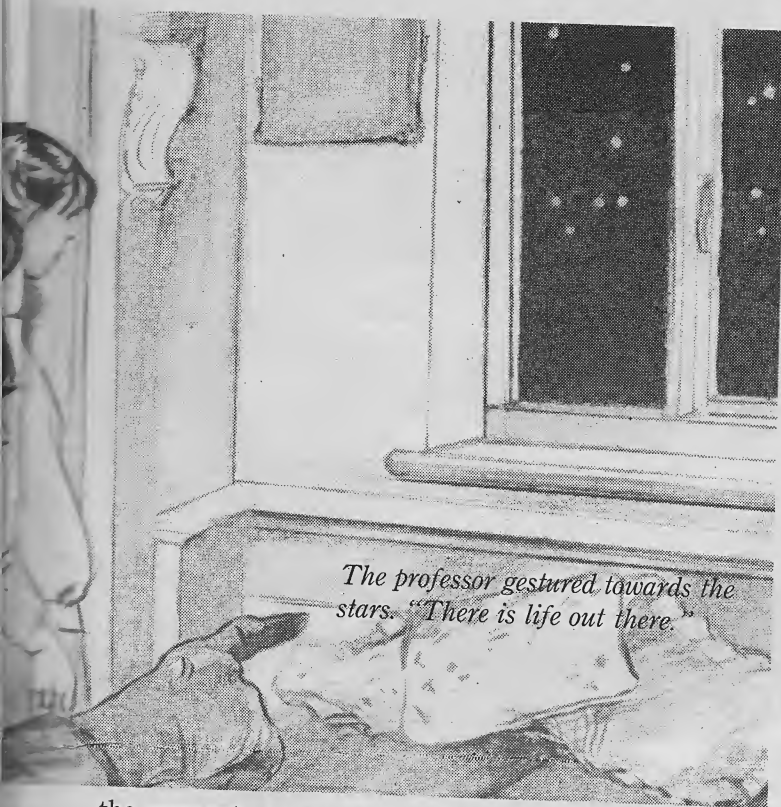
"Ladies and gentlemen—my two young visitors. Er, Joe, isn't it? And Ollie".

"Ellie".

"Ah, yes, Ellie. Meet Dr Osman, Dr Francis, Mr Puce, Mrs Heino, and my colleague Professor Morris-Jones. Well, ladies and gentlemen, Joe and Ellie have spotted something unusual on D3706. Something which, in the confusion of moving our records here, we seem to have missed."

He transferred the negative to an epidiascope, switched off the lights and drew the curtains. The projected image of the comet filled the screen. There, in front on the comet, for all to see, was an unusual shape, a series of hexagons linked by a central column. The image was blurred but it seemed that the hexagons were bristling with antennae and extensions.

"Now, this shot was produced in our laboratories; for



The professor gestured towards the stars. "There is life out there."

the moment we may assume that there is no question of faking. We shall have a full conference of the staff in five minutes. In the meantime I shall contact the Prime Minister. Mr Puce, see if we can re-establish communication with any of our colleagues around the world. Dr Osman, set up emergency surveillance".

"They seem to have forgotten about us". Joe and Ellie were still sitting in the professor's office. The bigwigs had been in conference for half an hour or more. A man had taken Joe and Ellie biscuits and a glass of orange and they were looking at some of the books in the prof's collection making sure that this time they did not leave sticky fingerprints on the pages.

"It says here that there are worms in the sea which can bore through stone". Joe turned the page. "It's not surprising that bacteria can destroy metal and non-metallic elements such as silicon".

"What are bacteria?" queried Ellie.

"Chuck over Volume 1".

"B. Bacteraemia . . . Bacteria . . . well . . . it seems that they're tiny vegetable organisms which help to break down the structure of things, like when things rot. . . Here, look at these pics".

Ellie took the encyclopaedia. "Wow! Hmmm. . . 'Bacterial leaching'. A method of mining which makes use of bacteria. Mineral deposits are blown up with explosives. Bacterial solutions are then pumped into the deposits. The minerals are consumed by the bacteria which are then flushed back to the surface. . ."

"So—people already use bacteria to gobble up minerals?"

"Sounds like it".

"Well. . . suppose that's what's happening now? Suppose somebody's extracting all the silicon from the Earth—and minerals too, perhaps?"

"Don't be daft, Joe. How could they send bacteria all over the world at once. And pump it back somewhere without us all noticing . . . and pump it back—where?"

"Well . . ." Joe wandered over to the window and pulled back the curtains to look over the rolling grounds

of the observatory. "Well. . . space? Perhaps the silicon is being beamed up to some kind of goods train out in space. I know it sounds stupid, but. . ."

"But there is a spaceship out there". Ellie's voice was shaking. "And the comet might be a great cloud of mineral dust and silicon which has been gathered by the spaceship to take it back to its own planet!"

"A kind of interplanetary mining expedition."

There was a moment's silence while Joe and Ellie stared at each other, agog with excitement.

"Quick, let's go and find Lebo".

Joe and Ellie raced out of the room. The doors of the conference room were at the end of the corridor. The two cannoned into each other as they collided with the double doors and went head over heels into the room. Thirty faces swung round and the professor rose to his feet.

"Very well, what is it? I hope you haven't interrupted us for nothing." Lebo looked fiercely at Joe.

Joe gulped. "Well, it's just an idea . . ."

The curfew had long been in force by the time Professor Lebo's old Bentley sped up to 33 Maldwyn Road. Joe and Ellie's bikes were strapped to the back and the two youngsters were dozing in the back seat. The prof's special pass had allowed them to sweep through all the road blocks on the way home from the observatory. It seemed that the threatened flood had come to nothing. Dad came storming out of the house.

"What have they been up to? I warned 'em! Oh, back again, are you?"—to the professor.

"I'm sorry if you have been worried," sighed the professor, "but I'm sure you will understand. You see these two rascals have today achieved more than some of the best brains in the country".

"It's a spaceship, dad!" Joe gabbled.

"And it's nicking all our resources, you see", said Ellie.

"No, I don't see", said dad. "You'd better all come in".

"What it means", said Ellie, as dad passed a cup of tea to Professor Lebo across the kitchen table, "is that mum was probably right".

Mum smiled. "Well, of course!"

"Oh, we can't be certain", said the professor, chuckling.

"At the moment there is every indication that the children's theory is correct. The comet has now passed away from our planet and we can establish no contact with the alien spacecraft but it seems that with its passing the minerals still left have been stabilised and no more computer systems have failed. The crisis is over. We shall have to re-build and re-think—we have learned a useful lesson".

"Suppose they come again?" Joe piped up.

"Well, then we are ready for them". The professor gestured towards the stars already shining through the window.

"There is life out there. We shall learn to communicate and, I hope, co-operate. Joe and Ellie, thank you. I think you will find that you are famous tomorrow, but don't let the fame go to your heads, you two. We're going to need some sensible people around in the future!"

"Well, that rules out Joe!" said Ellie. "What a shame!"

"At least I'm not an alien from outer space already", countered Joe.

"Oh, shut up and go to bed, will you?" screamed mum.

"Nothing really changes", muttered Ellie, "night".

THE END

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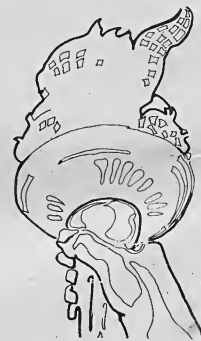
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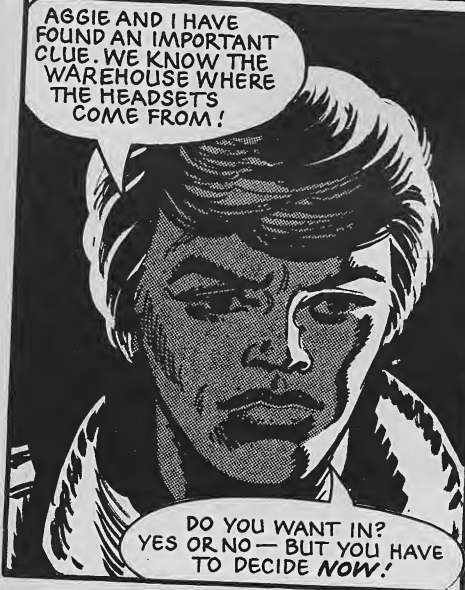
THE INVASION OF THE ARCADIANs

SCRIPT:
LES COOKMAN
ART:
JOHN STOKES
LETTERS:
STEVE POTTER

THANKS TO AGGIE, THE MYSTERIOUS **D** HAS DISCOVERED THE SOURCE OF THE PERSONAL STEREOS THE DAZERS WEAR. THESE HEADSETS ARE THE CONTROLLING DEVICES OF THE ALIENS WHO USE THE ARCADE GAME MIND WARP TO HYPNOTISE THEIR VICTIMS.



AGGIE AND I HAVE FOUND AN IMPORTANT CLUE. WE KNOW THE WAREHOUSE WHERE THE HEADSETS COME FROM!



DO YOU WANT IN?
YES OR NO — BUT YOU HAVE TO DECIDE NOW!

I STILL THINK YOU'VE A SCREW LOOSE... BUT I'LL COME ALONG FOR THE RIDE. COULD BE GOOD FOR A LAUGH.



ME TOO. BEATS HANGING AROUND THE BUS STOP! ... BUT I'M SUPPOSED TO BE HOME BY SIX.

LET'S GET MOVING! BUT WE'LL NEED CASH — AND I'M SKINT.



DON'T WORRY ABOUT GETTING HOME — THAT'S THE LEAST OF OUR WORRIES. THIS WAREHOUSE WON'T BE THE END OF THE TRAIL, IT'S ONLY THE BEGINNING...



...AND AS FOR MONEY, I'LL SHOW YOU HOW TO GET IT!

THIS I GOTTA SEE!

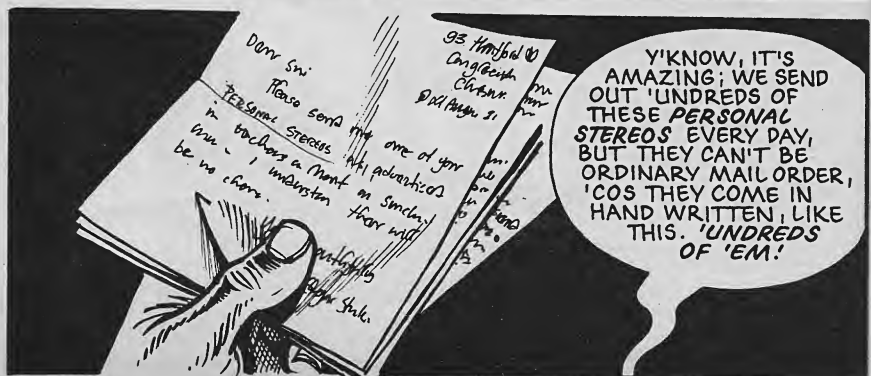
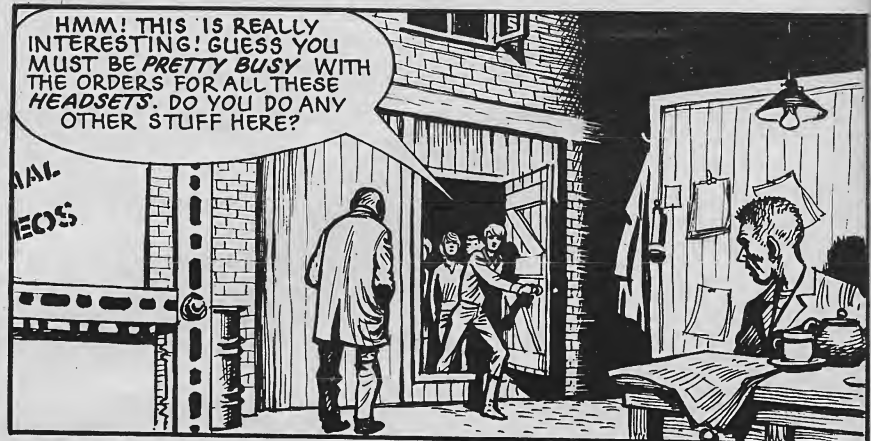
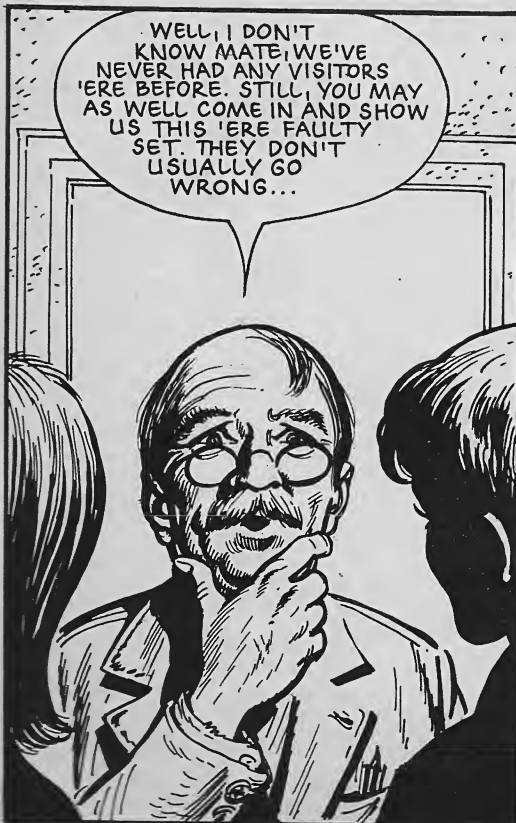
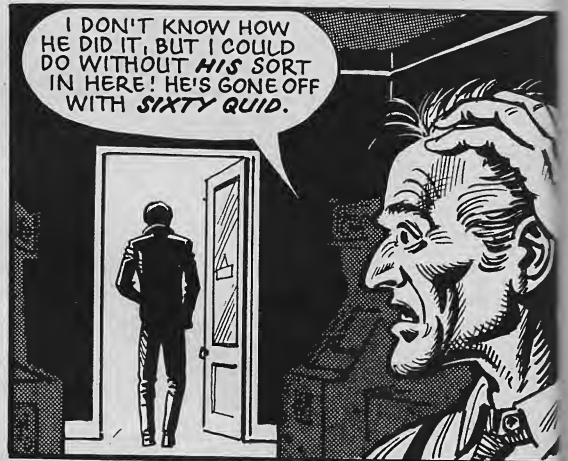
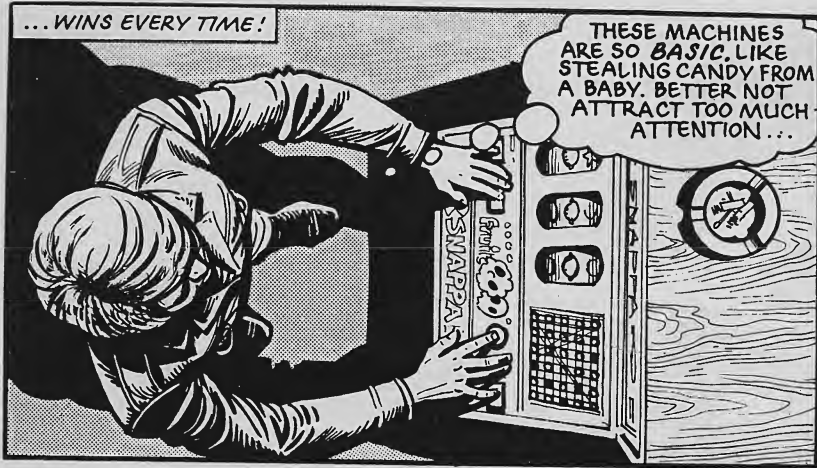


HE'S A WEIRD ONE, THAT **D**, I CAN'T MAKE HIM OUT, AND YET I RECKON HE'S TELLING US THE TRUTH. WE'D BETTER WAIT HERE LIKE HE SAID.

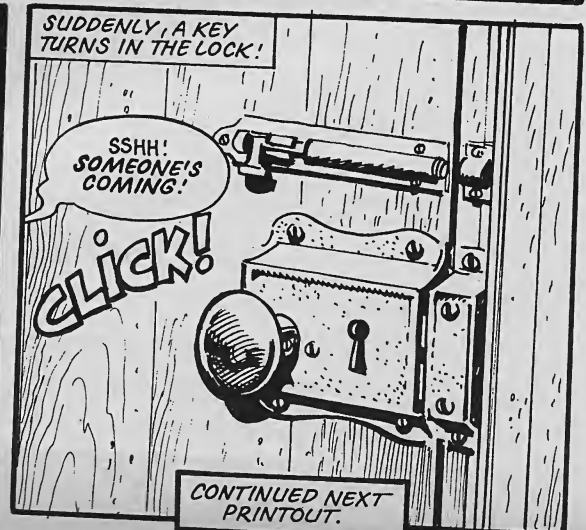
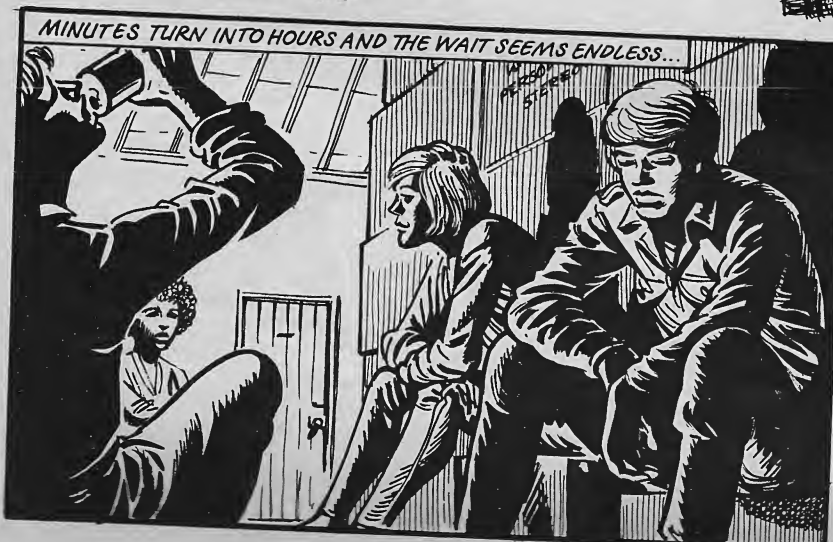
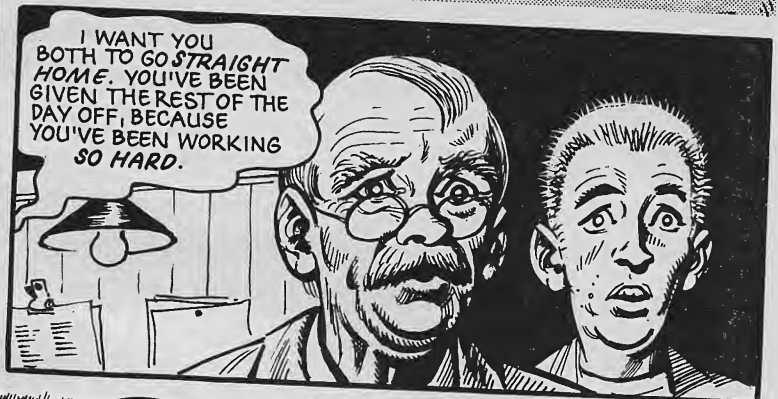
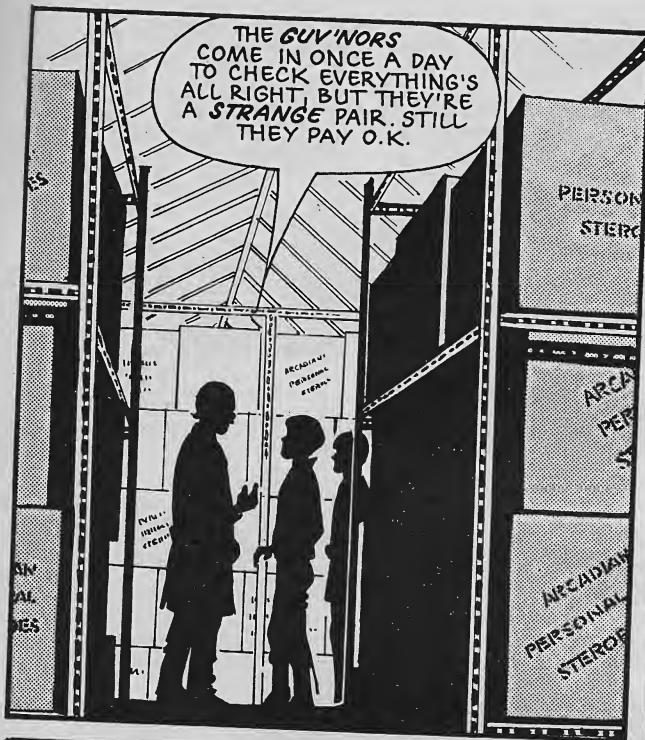


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Accurate personal income tax calculator for 82/83 tax year. Full documentation included. 16K RAM

£9.95

2-14 Meteor Storm

Spectrum version of the ever-popular arcade game. 16K or 48K RAM

£4.95

2-15 Star Trek

Popular space program brought to life by excellent graphics. 48K RAM

£4.95

2-21 Frogger

Manoeuvre the frog across the road avoiding heavy traffic. 48K RAM

£5.95

2-22 Crazy Balloons

Guide the balloons round the maze without bursting. 48K RAM

£5.95

2-23 Arcadia

The expert's version of the popular 'Invaders' game. 16K or 48K RAM

£5.95

2-24 Golf

The finest of golf handicap games. 48K RAM

£5.95

2-25 Test Match

More exciting than the real thing! 48K RAM

£5.95

2-26 Derby Day

This favourite has to be a winner. 48K RAM

£5.95

2-27 Rescue

Rescue the Princess from marauding patrols. 48K RAM

£5.95

2-29 Jackpot

The harmless way to take on the one-armed bandit. 48K RAM

£5.95

2-41 Comp-U-Share

See 1-31 under ZX81. 48K RAM

£9.95

2-42 Comp-U-Tax

See 1-32 under ZX81. 48K RAM

£9.95

Spectrum Software

2-12 Avenger

[See 1-12 under ZX81]. 48K RAM

£4.95

2-13 Sentinel

Guard your mother ship against alien attacks. 48K RAM

£4.95

To: The Software Workshop, Yew Tree, Selborne, Hants GU34 3JP

I wish to order the following programs. I understand that:

- * I will receive a FREE blank cassette with every 2 programs ordered
- * I can return products within seven days if not entirely satisfied and receive a replacement.

Ref No	Qty	Title	Price

Postage, packing and handling: add 45p for the first cassette, and 25p for each additional cassette. Non-UK orders add extra 50%

I enclose a cheque/postal order for _____

Name _____

Address _____

(Allow 28 days MAXIMUM FOR DELIVERY)

Total



Commodore 64



**Commodore (U.K.) Ltd.,
675 Ajax Avenue,
Slough, Berkshire.**

Specifications

Price	£299.99
Number sold	110,000
How sold	Assembled
Processor	6510/6502
Standard RAM	64K
Expansion RAM	-
Basic + operating system	16K
Display	24 lines × 40 characters
Tape recorder	Manufacturer's
Backing storage	Disc drives
	Optional
	Z-80 option
	Colour

Software

Anirog Software, 26 Balcombe Gardens, Horley, Surrey.
Level 9 Computing, 229 Hughenden Road, High Wycombe, Bucks, HP13 5PG.
Llamasoft Software, 49 Mount Pleasant, Tadley, Hampshire, RG26 6BN.

Comments

A relative newcomer to the computer market in Britain. This computer is expected to do well during the run-up to Christmas and is already on many dealers' Top Ten lists. Most Vic-20 peripherals are compatible with the Commodore 64 although Vic programs will have to be modified slightly, in some cases, to run on it. Next year a Z-80 processor cartridge will be introduced to allow CP/M business software to be run on it.

Program

This program is an aid in the design of sprites on the 64. You must put in the decimal byte value when asked by Column and Byte. The computer will then display your creation on the screen.

```

10 DIM A(21,3)
20 PRINT "CLR"
30 FOR K=1 TO 21
40 FOR M=1 TO 3
50 PRINT "ROW";K;"BYTE";M
60 INPUT A(K,M)
70 NEXT M
80 NEXT K
90 LET D=53248
100 POKE D+21,2: POKE 2041,13
110 LET N=0
120 FOR K=1 TO 21
130 FOR M=1 TO 3
140 POKE 832+N,A(K,M)
145 LET N=N+1: IF N>62 THEN GO TO 150: NEXT M: NEXT K
150 PRINT "CLR"
160 POKE D+4,10: POKE D+5,10
    
```

Hi-Low

THE COMPUTER will pick a card at random and you must decide whether the next card will be higher, lower, or the same. This version of the old classic can be easily expanded using high resolution graphics. The program runs on the Oric and uses 9.5k of memory.

Hi-Low was submitted by A. T. Dhalla of London, N1.

```

4   CLS
5   PLOT10,10,"NICE TO SEE YOU"
6   PLOT10,12,"TO SEE YOU NICE"
7   WAIT 200
10  FORA=1TO4
11  READB
12  FORC=1TO8
13  READD
14  POKEB,D
15  B=B+1
16  NEXTC
17  NEXTA
20  LETA$(1)="{ "
21  LETA$(2)="}"
22  LETA$(3)="]"
23  LETA$(4)="["
24  GOSUB1040
25  CLS
100 X=1INT(RND(1)*13)+1
101 Z=X
102 GOSUB2000
105 GOSUB1000
106 FORS=1TO4
200 PRINT"WILL THE NEXT CARD BE
    HIGHER LOWER OR SAME (H,L,OR S)
210 INPUTA$
220 IFA$="H" THEN 300
230 IFA$="L" THEN 300
240 IFA$="S" THEN 300
250 PRINT"IT MUST BE H,L OR S"
260 GOTO210
300 GOSUB1040
301 Y=INT(RND(1)*13)+1
302 Z=Y
303 GOSUB2000
400 IF X<Y AND A$="H" THEN 441
410 IF X<Y AND A$="L" THEN 441
420 IF X<Y AND A$="S" THEN 441
421 GOSUB1000
430 PRINT "WRONG"
431 WAIT100
432 CLS
440 GOTO700
441 GOSUB1000
500 PRINT "RIGHT"
510 X=Y
600 NEXT S
605 CLS

```

```

610 FOR H=1 TO 10
620 PLOT 15,12, "WELL DONE"
630 WAIT 30
660 PLOT 15,12," "
665 WAIT 30
670 NEXT H
680 GOTO 720
700 PLOT 10,12, "THAT'S TOO BAD"
710 WAIT 500
720 PLOT 1,12, "DO YOU WANT TO
    PLAY THE GAME AGAIN Y/N."
730 INPUT I$
740 IF I$="Y" THEN 24
750 END
1000 FOR W=1TOZ
1010 PRINT A$(R);
1020 NEXT W
1021 PRINT
1030 RETURN
1040 R=INT(RND(1) * 4) + 1
1050 ON R GOSUB 1070,1090,1110,
    1130
1060 RETURN
1070 LET P$ = "OF DIAMONDS"
1080 RETURN
1090 LET P$ = "OF SPADES"
1100 RETURN
1110 LET P$ = "OF CLUBS"
1120 RETURN
1130 LETP$ = "OF HEARTS"
1140 RETURN
2000 IF Z = 11 THEN PRINT "JACK"
    P$
2010 IF Z = 12 THEN PRINT "QUEEN"
    P$
2030 IF Z = 13 THEN PRINT "KING"
    P$
2040 IF Z = 1 THEN PRINT "ACE" P$
2045 IF Z<=10 AND Z>1 THEN PRINT
    Z " " P$
2050 RETURN
10000 DATA 47080
10001 DATA 4,14,31,31,31,14,31,0
10002 DATA 47064
10003 DATA 0,12,30,63,63,30,12,0
10004 DATA 46824
10005 DATA 12,30,45,63,45,12,30,0
10006 DATA 46808
10007 DATA 0,10,31,31,31,14,4,0

```




HI ! I'M BRAINY and I really rate computers. I'm in Load Runner every issue so write to me at 196-200 Balls Pond Road, London N1 4AQ and I'll do my best to answer any questions you have.

Remember, Brainy's the name and, by the way, I will pay £1 to anyone whose name is mentioned. Write away!

BRAINY'S BRAINBOX

An ABC for the BBC

YOU HAVE suggested books to help people with their computers. I have a BBC. What do you suggest to help me?

Brian Vaughn, Aldershot

THE ONLY SIMPLE book on using the BBC micro which young people can follow is *Easy programming for the BBC* published by Shiva. Many grown-ups use it, too. You may also be interested in *TY graphics* from Margetts Computing, a set of exercise programs with two cassettes of commentary. That is very good if you know the basic ideas.

* * *

Equal opportunities?

I THINK it is unfair that computers are taught much better at boys' schools than girls' schools. None of the teachers at my school know anything about computers but at the boys' school next door they have regular lessons in computing and a much bigger range of computers than us. Is there anything I can do?

Fiona Forsyth, Birmingham

I AM AFRAID that is common throughout single-sex schools around the country; it is of course partly due to the fact that girls have

been, on the whole, less interested in computing than boys. Only 14 per cent of girls interested in computers have one at home. The situation is improving slowly. I am sure that you will soon have a teacher who knows about computers and in the meantime you can keep yourself informed by reading *Load Runner*, going to local shows and courses, and watching computer programmes on TV, or joining a club.

* * *

The low down on sprites

I HAVE READ in computer magazines about Commodore and Atari computers having sprite graphics. Please could you tell me what is special about them?

Kevin Banks, Cornwall

SPRITE GRAPHICS are a way of having layers of graphics, like foreground and background. They are capable of printing, say, a man walking down a street, and printing him in front of a shop, so that it looks as if he is walking in front of it, and could tell the programmer when he is in front of the shop. It can be done on computers without sprite graphics but it uses more memory and is much more complex. That is one of the reasons why the Atari machines are such popular games computers, because it is also easy to tell whether a bullet has hit someone or not.

Two weeks is too long

I THINK that Load Runner is great but why doesn't it appear every week? Two weeks is a long time to wait to see what happens in the stories.

Simon Carter, Hull

TWO WEEKS might seem a long time to you but it is very short for all the work which needs to be done in the preparation and publishing of each issue. Perhaps, if the comic continues to be successful, it will be produced weekly, but even Brainy me can't see so far ahead.

* * *

A micro for all the family

I LIVE in a large family and we want to buy a computer, but we want one which more than one person can play with and which is not too costly. Please can you suggest a computer which fits that description?

Alyson Francis, Cheltenham

MOST COMPUTERS have games which can be played by more than one person, for instance the Spectrum, which is fairly inexpensive and has a number of games—e.g., Monopoly and Scrabble—for more than one person. I suggest that you buy whatever computer you want, checking first that someone produces games with a two-person control.

* * *

All the colours of the rainbow

ARE THERE any home computers which have a complete range of blendable colours so you can have a rainbow effect on the TV screen?

Simon Randall, Yorkshire

THE ATARI 400 and 800 are capable of producing that effect but it requires complex commands. Once that has been mastered, you can get a very stunning effect. Unfortunately it is not capable of giving the full colour range of the rainbow, because it would be too complex. It has some 150 colours available. You can buy add-ons and special software for computers like the BBC and Commodore which enable them to have a good range of colours.

TRUMBULL'S WORLD

AS THE CHILDREN OF **PROGRAMMER TRUMBULL** SEARCH FOR THE **EQUATION** THAT WILL LIBERATE MANKIND IN THE ADVENTURE WORLD THEIR FATHER CREATED ON HIS COMPUTER, **SIMIAN**, HEAD OF THE GOVERNMENT, WAITS FOR HIS OPPORTUNITY TO HUNT THEM DOWN...

IN **TRUMBULL'S WORLD**, JAN BACKS OFF IN TERROR FROM...



THAT KEY
DOESN'T FIT
THIS DOOR

THE LOGRE!

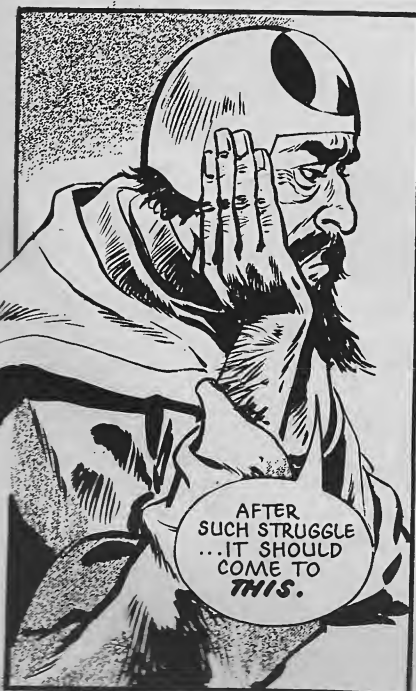


IN THE OUTSIDE WORLD, ALONE IN THE **HALL OF INNOCENTS**, **SIMIAN** WATCHES AND WAITS...

SCRIPT:
ROB BEATTIE

ARTWORK:
MALCOLM STOKES

LETTERS:
STEVE POTTER



AFTER
SUCH STRUGGLE
...IT SHOULD
COME TO
THIS.



TWO
CHILDREN
AND A DYING
MAN STAND
BETWEEN ME
AND MY
REWARD.



LAN,
IS THE UNIT
COMPLETE?

YES, LORD.
IT WILL TAKE
YOU AND THE
HUNTER INTO
TRUMBULL'S
COMPUTER
WORLD.



GOOD. I AWAIT
THE HUNTER HERE.
WE WILL JOIN
YOU SHORTLY.



NIGHT FALLS... AND **SIMIAN**
WAITS FOR HIS **DESTINY**.



THE HUNTER.



OLD
FRIEND...
IS IT
YOU?

YES, **SIMIAN**...
OLD ENEMY.



NO, **SIMIAN**.
RISE. I MAY
STILL BETRAY
YOU IN THE
END.

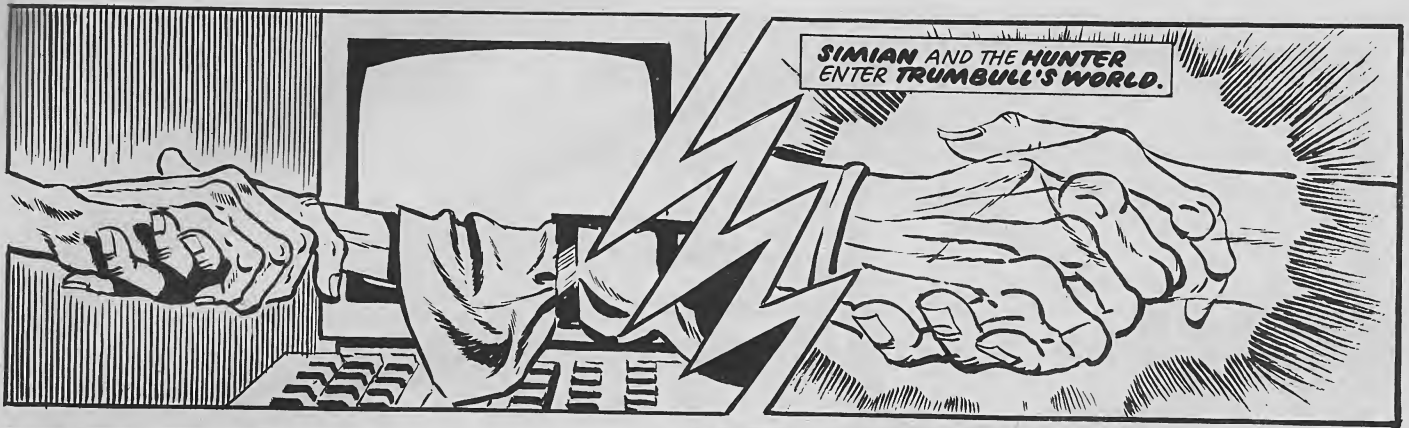


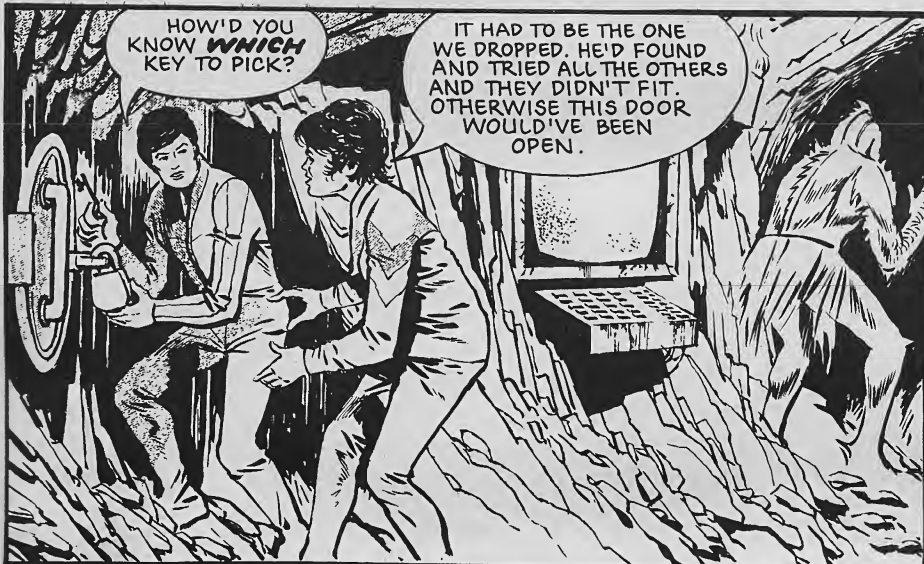
**LATER,
IN THE
CONTROL
ROOM.**



THIS MIMICS
THE **PROGRAM**
THAT **TRUMBULL**
USED TO CREATE
HIS WORLD.

IF YOU
WILL CLASP
HANDS MY
LORD, I WILL
ACTIVATE
THE
SYSTEM.





Royalty & robots

AT WINDSOR & ETON Central Station Madame Tussaud's has opened its most ambitious project to date—the *Royalty and Railways* exhibition that commemorates Queen Victoria's Diamond Jubilee of 1897. The exhibition depicts the arrival by Royal Train at Windsor of the Royal Family and recreates the scene in life-like and lifesize detail, from the station porters to the entire Guard of Honour; an impressive display which has at its centre the gleaming replica of the royal locomotive, 'The Queen'.

The exhibition also includes an audio-visual presentation celebrating 'Sixty Glorious Years' of Victoria's reign, and it is here that, almost unpublicised, Madame Tussaud's has unveiled its most stunning accomplishment. Presented and narrated by actor Frank Finlay, the short theatrical performance introduces important historical figures from Victorian England—Florence Nightingale, Disraeli, Charles Dickens, and of course, Victoria and Albert. Blinking in the dazzle of the spotlights, they deliver their lines with clarity and aplomb, and go through their movements with precision. An astounding sight, because all the actors, including Finlay, are computer-controlled automata—speaking, moving robots that are the climax of five years of research and programming, and the first such

figures seen outside Disney's Theme Parks.

Madame Tussaud's is understandably proud of its achievement. Consultant John Wardley proudly asserts that the animation has equalled the standard previously set by Disney. The heads are particularly realistic, even down to the barely perceptible movement of bone and muscle beneath the skin. Wardley is not one to rest on his laurels, however: 'These are only prototypes; in two or three years we'll have something that will really make people sit up and take notice.'

Secret system

The complex and vast array of computer equipment that operates the automata—and, in fact, the entire theatre, from the opening of the doors to the lights going on at the end—remains a closely-guarded secret. Load Runner was allowed only a quick peek at a huge bank of decoders before they were once more locked away.

Royalty and Railways, is, in anyone's book, an exhibition well worth a visit. For the computer enthusiast it is a must, providing as it does an opportunity to marvel at state-of-the-art computer capability, and a glimpse of the shape of things to come. The exhibition is open every day from 9.30 am to 5.30 pm, except Christmas Day.

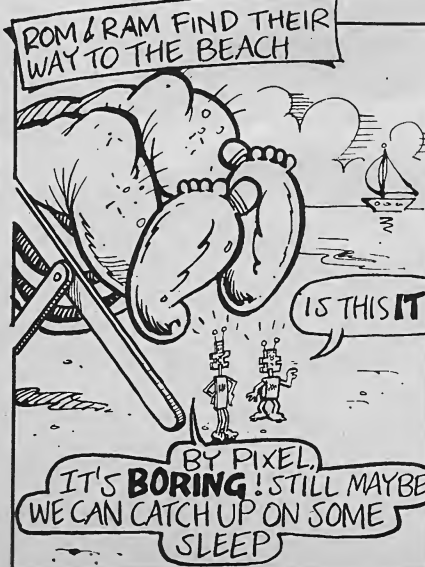
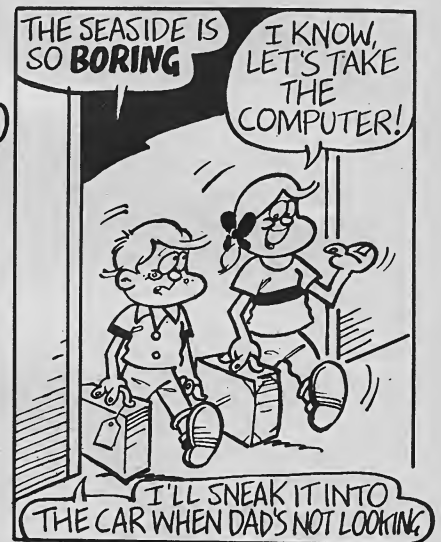


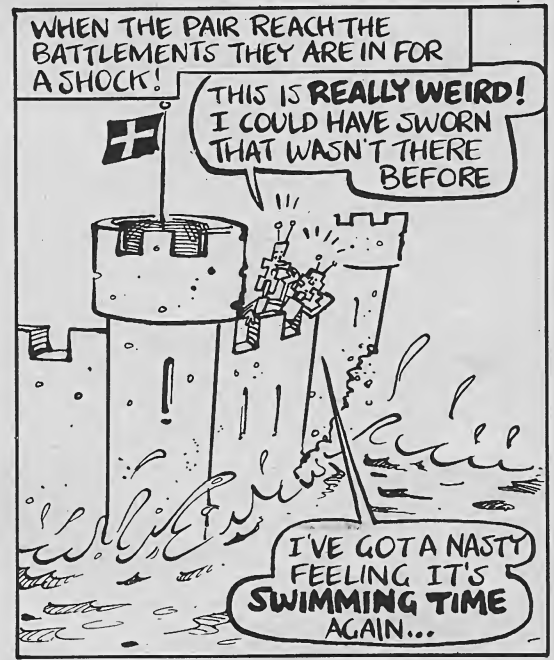
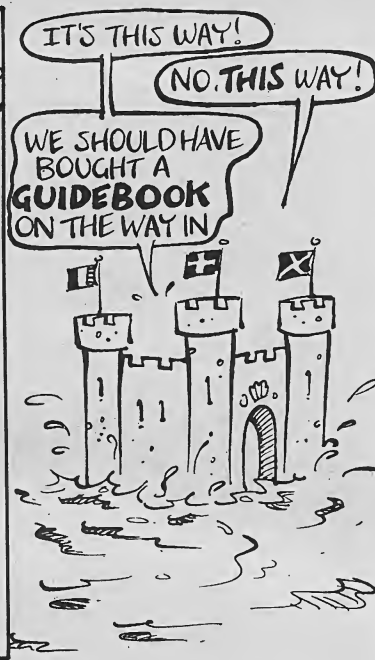
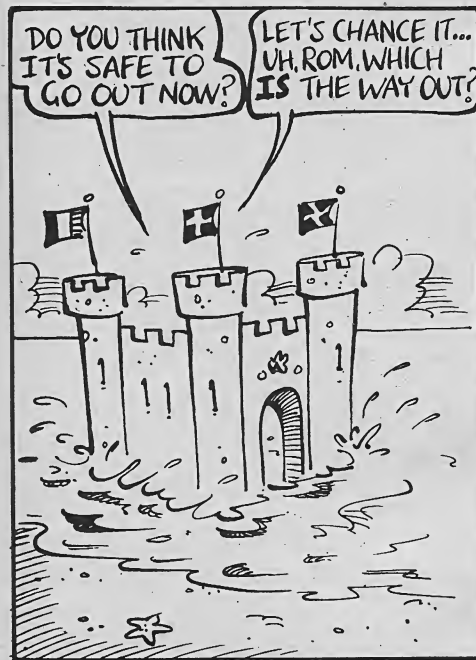
Top: the Royal locomotive, 'The Queen.'
Above: the royal party leaving for Windsor Castle.

Below: a section of the computer.
Below right: the animated figure of Queen Victoria.



THE ADVENTURES OF ROM AND RAM





Midway's Galaxian

ABOUT 18 MONTHS after the first lucky few blasted the Space Invaders into cosmic dust, came the second wave of aliens from a distant galaxy in Galaxian. This was brought into this country by Bally Midway, now Bally International. As with the Invaders, only a few units were imported at first but they were, of course, a great success and were soon followed by thousands more machines.

Graphically, Galaxian is a great improvement on Space Invaders by featuring multi-coloured aliens hovering unsteadily at the top of the screen, frequently breaking formation and screaming downwards intent on destruction by dropping not one, but great clusters, of bombs. The player has to be more skilful in his use of the laser base ship to avoid the bombs and destroy or avoid the swooping creatures, whose numbers increase on each new wave. If an alien is lucky enough to avoid destruction by the player, it will re-appear at the top of the screen to fall back into formation.

To achieve high scores, the player must try to hit the yellow coloured commander in flight, but an even greater bonus can be earned by destroying the red escorting aliens just before the commander. Woe betide the player who gets cornered by the swooping aliens. An extra life can be earned on reaching 5000 points but this varies on different machines.

Software

ATARI Galaxian for the 400/800 home computer is a very good transformation from the arcade original and Atari will soon launch Galaxian for their Video Computer System under licence from Bally.

Commodore produce Vic Galaxian for the Vic 20 and Interceptor Micros also produce a version called Galaxion. Both run on the unexpanded Vic 20.

BBC Model B owners may like to invest in Swoop by Program Power of Leeds.

In ZX-81 Galaxian manufactured by Artic Computers aliens inhabit the circuits of 16K 81's waiting to destroy the unsuspecting player.

All the above programs have several skill levels to tax all from the beginner to the pro.

Star Ratings out of 10

Atari	8
Vic Galaxian	6
Interceptor Micros	7
Swoop	7
ZX Galaxian	6



Providing processor power to The Controller in publishing Load Runner were Bill Scolding (editor), David Hogan (advertisement manager) and June Mortimer (administration). Chris Winch, Harold Mayes MBE, Terry Cartwright and Richard Hease linked into the system. The corporate might of ECC Publications of 196-200 Balls Pond Road, London N1 4AQ was utilised continually. Printout by Cradley Print PLC, Warley, West Midlands. Distributed by Spotlight Magazine Distribution Limited, 01-607 6411. ISSN 0264-8369. © 1983 Load Runner.